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Water Resources Data for Puerto Rico

Part I. Surface Water Records

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the Commonwealth of Puerto Rico
and with other agencies

1970

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Part I. Surface Water Records

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Puerto Rico Aqueduct and Sewer Authority
Puerto Rico Water Resources Authority
Puerto Rico Industrial Development Company
Puerto Rico Department of Public Works
Puerto Rico Mining Commission
Corps of Engineers, U.S. Army

Water resources records, 1970, for Puerto Rico are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for Puerto Rico
   Part 1: Surface Water Records

2. Water Resources Data for Puerto Rico
   Part 2: Water Quality Records, 1968-72

3. Water Resources Data for Puerto Rico
   Part 3: Ground Water Records, 1968-72

Copies of this report may be obtained from
District Chief, Water Resources Division
U.S. Geological Survey
Building 652
Fort Buchanan, Puerto Rico 00934

1973

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FOR WHICH RECORDS ARE PUBLISHED

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WATER RESOURCES DATA FOR PUERTO RICO, 1970

PART 1. SURFACE-WATER RECORDS

INTRODUCTION

Surface-water records for the 1970 calendar year for Puerto Rico, including records of streamflow at gaging stations and partial-record stations are given in this report and their locations shown in figures 1 to 15. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey under the direction of D.G. Jordan, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating Commonwealth and Federal agencies in Puerto Rico.

Prior to the 1968 calendar year, water resources data for Puerto Rico have been released in a series of reports entitled "Water Records of Puerto Rico," and covered the period 1958-67. Included were records for streamflow stations, ground-water wells, and the chemical and physical characteristics of surface and ground water.

Beginning with the 1968 calendar year, surface-water records are being released separately on an annual basis. Ground-water records, and data on chemical and physical characteristics of surface and ground water are being released in companion reports covering periods of several years.

COOPERATION

The U.S. Geological Survey and organizations of the Commonwealth of Puerto Rico have had cooperative agreements for the systematic collection of surface-water records since 1958. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Puerto Rico Aqueduct and Sewer Authority
Puerto Rico Water Resources Authority
Puerto Rico Industrial Development Company
Puerto Rico Department of Public Works
Puerto Rico Mining Commission

Assistance in the form of funds was given by the Corps of Engineers, U.S. Army, in collecting records for 3 gaging stations published in this report.

DEFINITION OF TERMS

Definition of terms related to streamflow and other hydrologic data, as used in this report, are defined as follows:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of a area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (cfs) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second, and is equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream or canal where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Partial-record station is a particular site where limited streamflow data are collected systematically over a period of years for use in hydrologic analyses.

Runoff in inches (IN.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

DOWNSTREAM ORDER AND STATION NUMBERS

Records are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of gaging stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 50035000, includes the part number "50" and a 6-digit station number. In this report, the numbering of stations begins at the northwest cape of Puerto Rico, and proceeds, basin by basin in a clockwise direction around the island.

EXPLANATION OF SURFACE-WATER DATA

Collection and Computation of Data

The base data collected at gaging stations consists of records of stage and measurements of discharge of streams or canals. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. Records of stage are obtained from a water-stage recorder that gives a continuous graph of the fluctuations (for digital records, a tape punched at 15-, 30-, or 60-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter, using the general methods

adopted by the U.S. Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks on the measurement of stream discharge. (See also SELECTED REFERENCES.)

For a stream-gaging station rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage heights to the rating table gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins.

The data in this report generally comprise a description of the station and tabulations of basic data. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. Records are published for the calendar year.

The description of the gaging station gives the location, drainage area, period of record, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD." The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the U.S. Geological Survey, unless otherwise qualified. The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE;" it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more

complete years of record if the median differs from the average by more than 10 percent. The maximum discharge and the maximum gage height, the minimum discharge if there is little or no regulation, and the minimum gage height if it is significant are given under "EXTREMES." The minimum daily discharge is given if there is extensive regulation (also the minimum discharge and gage height if they are abnormally low). In the first paragraph headed, "Current year:" the data given are for the complete current water year unless otherwise specified. In the second paragraph under "EXTREMES" headed "Period of record:" the data given are for the period of record given in the PERIOD OF RECORD paragraph. Reliable information concerning major floods that occurred outside the period of record is given in the third or last paragraph under "EXTREMES." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge or contents, it is given separately. Information pertaining to the accuracy of the discharge records and to conditions that affect the natural flow at the gaging station, is given under "REMARKS."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "REVISIONS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the years for which figures are revised in that report. If no daily, monthly, or annual figures of discharge were revised, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The daily tables for stream-gaging stations give the discharge corresponding to the daily mean gage height unless there are large or rapid changes in the discharge during a day. For days having large or rapid changes, discharge for the day is computed by averaging the mean discharge for several parts of a day. For digital recorders, the daily mean discharge is always the average of the discharges at each punched reading. For stations equipped with nonrecording gages, the daily discharge corresponds to once-daily readings of the gage or to the mean of twice-daily readings; but for periods of rapidly changing stage the discharge isdetermined from a gage-height graph based on gage readings.

The monthly summary is given below the daily table. For stream-gaging stations the line headed "TOTAL" gives the sum of the daily figures; it is the total cubic feet per second per

day for the month. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The line headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN.") or in acre-feet (line headed "AC-FT"). Figures of cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, or if the drainage area includes large noncontributing areas.

In the yearly summary below the monthly summary, the figure of maximum is the maximum daily discharge for the calendar year; likewise, the minimum in this summary is the minimum daily discharge.

Peak discharges and their times of occurrence and corresponding gage heights for many stations are listed below the yearly summary. All independent peaks above the selected base are given. The base discharge, which is given in parenthesis, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030 and 1:30 p.m. is 1330.

In a general footnote, introduced by the word "NOTE" certain periods are indicated for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage are indicated only if they are a month or more in length and the accuracy of the records is affected. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

Accuracy of Data

The accuracy of discharge data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges is within 5 percent; "good" within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumptive use, regulation, evaporation, or other factors. For such stations, discharge in cubic feet per second per square mile and runoff in inches are not published unless satisfactory adjustments can be made for such effects. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or unadjusted losses (consumptive use, evaporation, seepage, etc.) are large in comparison with the observed discharge.

Publications

Records of Water Resources Investigations in Puerto Rico by the U.S. Geological Survey, begun in 1958, are published in a series of reports entitled "Water Records of Puerto Rico," and cover periods 1958-63, 1964-67, and on an annual basis thereafter.

Special reports on major floods or droughts or of other hydrologic studies for the island have been issued in various publications such as professional papers, circulars, hydrologic investigations atlases, and open-file reports published by the U.S. Geological Survey, or in water resources bulletins prepared by the Geological Survey and published by the Commonwealth of Puerto Rico. Information relative to these reports may be obtained from the district office.

Other Data Available

Data collected at partial-record stations, annual maximum stage and discharge at crest-stage stations, are given in a table at the end of the surface-water records in this report. Results of discharge measurements made at low-flow partial-record stations are being released in the companion report covering the chemical and physical characteristics of surface and ground water.

More detailed information than that published for most of the gaging stations, such as discharge measurements, gage-height records, and rating tables, is on file in the district office. Many gaging-station records in Puerto Rico through 1967 have been analyzed to give several statistical summaries: (1) the number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year.

At most gaging stations, water-quality records also are collected. Data are obtained on the chemical quality of the stream water, on water temperature, and at some stations, on suspended-sediment concentration, and the particle-size distribution of suspended sediment and bed material. These data are given in a companion report.

SELECTED REFERENCES

Carter, R.W., and Davidian, Jacob, 1968, General procedure for gaging streams: U.S. Geol. Survey Techniques Water-Resources Inv., book 3, chap. A6, 13 p.

Corbett, D.M., and others, 1943, Stream-gaging procedure, a manual describing methods and practices of the Geological Survey: U.S. Geol. Survey Water-Supply Paper 888, 245 p.

Langbein, W.B., and Iseri, K.T., 1960, General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1541-A, 29 p.

QUEBRADA DE LOS CEDROS BASIN

50007000 Quebrada de Los Cedros near Isabela, P.R.

LOCATION.--Lat 18° 30' 46", long 67° 05' 47", at bridge on Highway 466, about 3,000 feet upstream from mouth, and 5.8 miles west of Isabela.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--December 1969 to December 1970 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map).

EXTREMES.--Maximum discharge during period of record, 7,480 cfs May 7 (gage height, 9.2 ft), from rating curve based on slope-area measurement of peak flow; no flow most of the time.

REMARKS.--Records poor.

PEAK DISCHARGES

DATE	DISCHARGE (IN CFS)	DATE	DISCHARGE (IN CFS)
1969		1970	
Dec. 19	48	June 11	113
		12	12
		14	15
1970		15	45
		21	10
Jan. 14	15	Sept. 24	3.0
May 7	76	Nov. 6	28
8	5.0	7	1.5
June 10	74	9	16

NOTE.--All other days, from Dec. 11, 1969 to Dec. 31, 1970, had no flow.

RIO GUAJATACA BASIN

50010500 Río Guajataca at Lares, P.R.

LOCATION.--Lat 18° 18' 01", long 66° 52' 24", at bridge about 150 feet downstream from bridge on Highway 111,0.1 mile upstream from Quebrada Anón, and 0.4 mile east of Lares.

DRAINAGE AREA.--3.16 sq mi.

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 935 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,620 cfs Nov. 6 (gage height, 7.01 ft), from rating curve extended above 20 cfs on basis of step-backwater analysis; minimum daily, 0.6 cfs Mar. 22-25, 30, Apr. 1.

Period of record: Maximum discharge, 1,930 cfs Sept. 15, 1969 (gage height, 7.77 ft), from rating curve extended above 20 cfs on basis of step-backwater analysis; minimum daily, 0.6 cfs Mar. 22-25, 30, Apr. 1, 1970.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.6	2.0	1.0	.60	1.6	15	4.0	2.6	15	16	6.4	8.0
2	4.2	1.8	1.4	.90	1.0	5.1	3.5	2.6	4.7	11	47	8.0
3	3.4	1.7	1.0	1.4	.92	3.5	3.6	2.5	3.6	9.6	14	7.6
4	3.7	2.3	.80	.90	1.1	3.0	3.5	2.6	3.3	12	24	7.6
5	3.9	2.4	.70	1.4	8.6	2.9	3.4	2.5	37	13	13	7.3
6	3.4	1.9	.70	1.5	30	2.7	3.3	2.6	5.4	20	84	6.8
7	3.1	1.8	.80	1.4	19	2.5	3.3	2.7	8.8	32	17	6.8
8	3.1	1.7	.70	.70	4.3	2.4	3.1	3.5	5.0	26	14	7.6
9	3.8	1.6	.70	.90	11	2.3	3.2	3.9	4.3	22	26	12
10	4.3	1.6	1.5	1.2	4.5	2.2	3.2	3.6	11	15	18	12
11	8.4	4.5	4.5	1.0	6.4	3.1	3.1	13	12	13	19	14
12	4.7	2.0	1.7	.80	4.3	2.9	3.2	3.7	11	11	14	14
13	3.9	1.6	1.2	.90	3.3	2.7	3.2	3.1	6.6	10	16	9.7
14	7.0	1.5	1.0	.80	2.3	66	3.2	3.1	5.8	9.2	13	8.0
15	4.3	1.3	.90	.80	1.9	40	3.2	2.9	5.2	8.8	12	7.6
16	3.9	1.2	.80	.90	1.7	54	5.0	2.9	43	11	11	6.8
17	3.4	1.1	1.1	1.4	1.7	10	3.2	2.8	9.0	12	11	6.5
18	3.5	1.0	.80	.90	1.6	7.0	3.1	2.7	6.6	8.4	10	6.3
19	3.7	1.0	1.2	.80	1.4	5.4	3.1	2.8	5.7	7.8	10	6.3
20	3.2	1.0	.90	.90	1.5	4.8	3.2	2.6	4.8	14	9.8	6.1
21	3.6	1.8	.70	.90	1.5	10	2.9	2.6	13	8.4	13	6.1
22	4.2	2.0	.60	1.0	1.4	5.4	2.8	2.7	6.2	7.4	20	5.8
23	2.4	1.8	.60	1.1	1.4	5.0	2.7	3.4	16	6.8	12	5.8
24	2.2	2.6	.60	1.2	1.3	4.8	2.5	2.8	15	12	10	5.4
25	2.1	2.4	.60	1.3	1.2	8.0	2.6	2.4	8.8	7.4	10	5.6
26	2.1	1.9	.90	1.2	1.2	5.0	2.6	2.6	6.2	6.8	11	5.4
27	2.0	.80	1.1	1.3	6.2	4.5	2.6	3.8	22	6.4	10	5.1
28	2.0	1.4	.80	1.7	2.8	4.1	2.6	6.4	14	6.0	8.9	5.1
29	1.9	------	.70	1.7	75	3.9	2.5	2.9	26	7.6	8.6	4.8
30	1.9	------	.60	7.8	55	3.8	2.5	2.6	25	9.4	8.3	4.0
31	1.8	------	.70	------	5.7	------	2.5	2.7	------	7.4	------	4.6
TOTAL	108.7	49.70	31.30	39.30	260.82	292.0	96.4	103.6	360.0	367.4	501.0	226.7
MEAN	3.51	1.78	1.01	1.31	8.41	9.73	3.11	3.34	12.0	11.9	16.7	7.31
MAX	8.4	4.5	4.5	7.8	75	66	5.0	13	43	32	84	14
MIN	1.8	.80	.60	.60	.92	2.2	2.5	2.4	3.3	6.0	6.4	4.0
CFSM	1.11	.56	.32	.41	2.66	3.08	.98	1.06	3.80	3.77	5.29	2.31
IN.	1.28	.59	.37	.46	3.07	3.44	1.14	1.22	4.24	4.33	5.90	2.67
AC-FT	216	99	62	78	517	579	191	205	714	729	994	450

CAL YR 1970 TOTAL 2,436.92 MEAN 6.68 MAX 84 MIN .60 CFSM 2.11 IN 28.70 AC-FT 4,830
WTR YR 1970 TOTAL 2,276.02 MEAN 6.24 MAX 104 MIN .60 CFSM 1.98 IN 26.80 AC-FT 4,510

NOTE.--No gage-height record Jan. 22 to Apr. 5.

RIO GUAJATACA BASIN

50011000 Canal Principal de Diversion at Lago Guajataca, P.R.

LOCATION.--Lat 18°24'02", long 66°55'25", at Lago Guajataca.

PERIOD OF RECORD.--February 1959 to May 1964 (annual measurements only), June 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 625 ft (from topographic map).

EXTREMES.--Current year: Maximum daily discharge, 80 cfs Apr. 1; no flow May 15-17.
Period of record: Maximum daily discharge 110 cfs Nov. 14, 1969; no flow May 15-17, 1970.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	29	39	35	80	63	47	37	36	63	31	35	37
2	29	46	35	79	46	29	38	43	66	32	50	37
3	29	46	36	67	45	25	35	63	14	30	56	14
4	31	38	39	51	40	32	35	71	48	30	57	32
5	33	46	52	56	33	37	35	65	39	30	48	28
6	36	43	47	71	39	37	40	59	35	29	35	28
7	55	29	31	79	53	37	45	49	35	31	36	38
8	68	32	38	78	53	37	45	40	38	30	27	41
9	57	39	58	76	31	39	46	46	41	32	33	32
10	37	40	73	63	32	41	42	59	44	31	40	32
11	37	40	73	45	32	39	35	65	43	29	36	32
12	44	42	75	50	33	35	39	66	33	25	29	34
13	44	39	65	71	33	35	46	64	37	28	29	34
14	35	30	51	79	19	35	54	52	41	41	30	44
15	35	34	56	77	0	38	65	39	41	50	32	60
16	33	43	66	76	0	39	51	42	41	45	30	59
17	30	48	68	64	0	39	30	52	42	40	31	58
18	30	50	11	49	2.0	38	30	63	38	40	30	57
19	30	54	51	60	23	37	38	63	32	40	30	56
20	28	48	58	77	45	37	52	63	37	40	29	55
21	33	31	44	79	29	37	68	54	40	37	29	54
22	43	31	44	77	30	37	74	40	35	35	33	53
23	41	35	53	74	30	37	56	49	35	36	37	53
24	35	41	73	63	30	37	35	65	36	28	37	59
25	39	42	71	49	37	37	35	65	33	30	34	58
26	43	46	53	53	42	37	35	64	29	35	32	56
27	41	44	44	65	14	37	41	54	32	38	33	55
28	46	35	44	77	42	37	51	41	33	43	33	43
29	47	------	52	77	43	37	51	42	30	43	33	37
30	45	------	70	74	48	37	51	41	31	38	35	43
31	36	------	78	------	52	------	45	50	------	30	------	36
TOTAL	1,199	1,131	1,644	2,036	1,019.0	1,103	1,380	1,665	1,142	1,077	1,059	1,355
MEAN	38.7	40.4	53.0	67.9	32.9	36.8	44.5	53.7	38.1	34.7	35.3	43.7
MAX	68	54	78	80	63	47	74	71	66	50	57	60
MIN	28	29	11	45	0	25	30	36	14	25	27	14
AC-FT	2,380	2,240	3,260	4,040	2,020	2,190	2,740	3,300	2,270	2,140	2,100	2,690

CAL YR 1970 TOTAL 15,810.0 MEAN 43.3 MAX 80 MIN 0 AC-FT 31,360
WTR YR 1970 TOTAL 16,514.0 MEAN 45.2 MAX 110 MIN 0 AC-FT 32,760

RIO GUAJATACA BASIN

50011200 Río Guajataca below Lago Guajataca, P.R.

LOCATION.--Lat 18°24' 01", long 66° 55' 40", on left bank, 250 ft downstream from bridge on Highway 476, 1,000 downstream tunnel, and 5.2 miles southeast of Quebradillas.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--August 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 535 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 375 cfs Oct. 3 (gage height, 20.70 ft), from rating curve extended above 130 cfs; minimum daily, 2.2 cfs May 27.

Period of record: Maximum discharge, 375 cfs Oct. 3, 1970 (gage height, 20.70 ft), from rating curve extended above 130 cfs; minimum daily, 2.2 cfs May 27, 1970.

REMARKS.--Records fair. Flow regulated by Lago Guajataca Dam. Low flows are from seepage through and under dam and near-by springs.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.2	70	3.7	5.7	4.7	11	3.3	3.1	5.2	133	4.3	7.1
2	6.0	70	3.8	5.6	3.5	4.4	3.2	3.2	5.7	202	4.8	6.8
3	6.2	70	4.1	5.2	3.4	3.0	3.1	4.6	3.9	243	5.1	8.1
4	6.2	70	4.5	4.3	3.3	2.8	3.1	7.3	3.5	244	5.3	6.3
5	44	72	5.7	4.4	3.2	3.1	3.1	5.7	3.5	207	5.0	5.8
6	62	72	5.7	5.1	3.3	3.1	3.1	4.6	3.7	168	12	5.5
7	78	74	4.3	5.5	7.0	3.0	3.6	4.0	3.3	202	34	6.2
8	86	74	4.1	5.2	5.1	3.0	3.7	3.4	3.4	237	153	7.0
9	62	9.4	4.7	5.3	3.4	2.9	3.6	3.6	3.6	234	153	16
10	60	5.8	6.3	4.9	3.1	3.0	3.5	4.5	3.6	232	184	89
11	60	4.9	5.8	4.1	3.1	2.9	3.2	5.7	3.7	201	238	144
12	63	5.0	6.2	4.1	3.1	2.6	3.2	5.2	3.6	165	188	144
13	75	4.7	5.7	5.0	3.0	2.5	3.7	4.9	3.3	123	231	144
14	106	5.0	4.3	5.7	3.0	2.7	4.0	3.9	3.4	64	208	146
15	106	5.0	4.4	5.5	3.0	2.8	5.5	3.2	3.5	65	238	159
16	105	5.4	5.0	5.4	3.0	2.8	4.9	3.1	3.4	26	238	159
17	28	5.4	5.0	4.9	3.0	2.9	3.1	3.4	5.2	7.8	228	159
18	20	5.4	3.3	4.0	3.1	2.9	3.0	4.3	3.8	7.3	226	159
19	9.0	5.2	4.4	4.4	3.5	2.9	3.1	4.2	4.9	6.8	226	159
20	7.0	4.9	5.2	5.6	3.8	3.0	4.0	4.1	3.9	6.7	186	159
21	6.6	4.5	4.4	5.8	3.0	3.1	5.9	3.9	3.9	7.5	150	159
22	6.4	4.5	4.3	5.6	2.9	3.1	7.6	3.2	3.4	6.6	152	159
23	6.2	4.3	4.6	5.4	2.8	3.1	5.7	3.4	3.4	5.7	152	98
24	6.0	4.2	5.4	5.0	2.8	3.1	3.2	5.0	3.6	5.0	152	148
25	6.0	4.0	5.7	4.1	3.0	3.2	3.0	4.7	18	4.8	79	148
26	6.2	4.2	4.4	4.1	3.4	3.2	3.1	4.6	70	5.0	9.0	148
27	70	4.0	4.1	4.6	2.7	3.2	3.2	4.2	71	5.0	7.3	148
28	70	3.8	4.0	5.9	3.5	3.1	3.9	3.3	72	5.4	7.1	101
29	70	------	4.2	5.6	3.5	3.1	3.7	3.2	73	5.2	7.4	45
30	70	------	5.2	5.0	3.6	3.1	3.7	3.2	74	5.2	7.3	29
31	70	------	5.6	------	3.6	------	3.6	3.5	------	4.4	------	7.3
TOTAL	1,383.0	671.6	148.1	151.0	106.4	98.6	117.6	128.2	470.4	2,834.4	3,490.6	2,880.1
MEAN	44.6	24.0	4.78	5.03	3.43	3.29	3.79	4.14	15.7	91.4	116	92.9
MAX	106	74	6.3	5.9	7.0	11	7.6	7.3	74	244	238	159
MIN	6.0	3.8	3.3	4.0	2.7	2.5	3.0	3.1	3.3	4.4	4.3	5.5
AC-FT	2,740	1,330	294	300	211	196	233	254	933	5,620	6,920	5,710

CAL YR 1970 TOTAL 12,480.0 MEAN 34.2 MAX 244 MIN 2.5 AC-FT 24,750
WTR YR 1970 TOTAL 10,515.7 MEAN 28.8 MAX 322 MIN 2.5 AC-FT 20,860

RIO GUAJATACA BASIN

50011400 Río Guajataca above mouth near Quebradillas, P.R.

LOCATION.--Lat 18° 28' 31", long 66° 57' 46", on left bank, 1.6 miles west of Quebradillas, 1.7 miles upstream from bridge on Highway 2, and 2.1 miles upstream from mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February to May 1969 (monthly measurements only), July 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 25 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,740 cfs Nov. 9; minimum daily, 10 cfs May 28.
Period of record: Maximum discharge, 1,740 cfs Nov. 9, 1970; minimum daily, 10 cfs May 28, 1970.

REMARKS.--Records good. Flow regulated by Lago Guajataca about 8 miles upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	16	135	18	19	23	81	15	16	22	181	17	21
2	15	101	19	19	22	75	17	15	89	355	17	20
3	15	101	91	19	20	48	17	17	33	565	18	19
4	15	101	119	17	22	33	17	26	19	449	46	18
5	15	99	25	16	20	24	17	24	16	395	85	18
6	15	101	83	17	21	21	16	21	15	229	142	17
7	16	148	175	22	71	19	17	19	17	285	312	19
8	20	150	83	20	193	17	18	17	40	449	525	48
9	22	115	16	21	67	16	21	16	22	437	717	58
10	18	22	21	87	22	16	17	18	17	413	621	698
11	103	20	21	145	18	20	16	21	15	401	575	584
12	50	23	21	85	18	16	15	22	14	245	495	364
13	31	23	19	19	16	14	15	22	19	209	430	260
14	150	24	17	22	15	15	16	20	15	81	393	228
15	95	24	15	19	14	27	19	18	14	81	395	260
16	46	27	17	19	14	20	22	16	30	73	390	247
17	32	25	19	19	13	17	19	15	69	22	413	238
18	29	25	17	16	14	16	14	17	40	22	355	234
19	26	26	12	15	14	15	15	19	22	21	385	251
20	24	29	18	17	16	15	17	18	27	59	340	237
21	24	26	17	20	15	16	22	18	20	41	209	231
22	23	24	15	19	13	17	28	16	17	30	241	227
23	22	23	16	19	13	15	25	16	16	47	237	183
24	21	21	17	19	14	15	19	18	18	22	209	209
25	19	21	20	17	14	14	16	20	26	21	181	211
26	19	19	17	15	16	24	15	19	91	41	35	210
27	87	20	16	19	14	17	15	19	93	22	35	207
28	103	19	15	24	10	16	17	22	93	17	35	182
29	103	------	15	24	14	16	17	18	103	17	81	55
30	103	------	16	24	79	16	17	15	117	17	22	54
31	101	------	19	------	79	------	17	15	------	19	------	23
TOTAL	1,378	1,492	1,009	833	914	691	548	573	1,149	5,266	7,956	5,631
MEAN	44.5	53.3	32.5	27.8	29.5	23.0	17.7	18.5	38.3	170	265	182
MAX	150	150	175	145	193	81	28	26	117	565	717	698
MIN	15	19	12	15	10	14	14	15	14	17	17	17
AC-FT	2,730	2,960	2,000	1,650	1,810	1,370	1,090	1,140	2,280	10,450	15,780	11,170

CAL YR 1970 TOTAL 27,440 MEAN 75.2 MAX 717 MIN 10 AC-FT 54,430
WTR YR 1970 TOTAL 25,018 MEAN 68.5 MAX 909 MIN 10 AC-FT 49,620

RIO CAMUY BASIN

50013000 Río Camuy near Lares, P.R.

LOCATION.--Lat 18° 17' 49", long 66° 49' 31", at bridge on Highway 111 (km. 19.2), 1.1 miles upstream from Río Criminales, 1.8 miles downstream from Río Angeles and Río Piedras confluence, and 3.5 miles east of Lares.

DRAINAGE AREA.--7.62 sq mi.

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1968 (monthly measurements only), May 1968 to December, current year.

GAGE.--Water-stage recorder. Altitude of gage is 950 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 2,280 cfs May 29 (gage height, 6.98 ft), from rating curve extended above 60 cfs on basis of slope-area measurement; minimum, 4.4 cfs Apr. 27, 28.

Period of record: Maximum discharge, 6,200 cfs Apr. 20, 1969 (gage height, 8.50 ft), from rating curve extended above 60 cfs on basis of slope-area measurement; minimum, 4.0 cfs June 11, 1968.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12	9.6	8.6	5.0	9.6	67	20	16	52	50	35	24
2	11	10	9.0	5.3	6.1	45	18	12	23	39	73	23
3	11	9.6	9.0	6.1	5.6	34	20	11	17	33	36	23
4	11	10	7.6	6.1	7.0	29	19	11	15	40	30	22
5	10	14	7.0	6.1	13	27	18	11	43	44	27	22
6	9.4	9.6	7.0	6.1	90	26	17	12	30	65	61	22
7	9.1	9.3	6.7	5.9	53	25	16	11	44	86	35	22
8	12	9.0	6.7	5.9	31	22	16	12	25	89	32	24
9	11	9.0	6.7	6.7	89	21	16	14	19	78	59	36
10	11	9.0	6.4	6.7	39	38	16	18	23	60	50	56
11	23	11	22	6.1	26	30	16	26	59	52	60	59
12	14	9.6	13	5.9	24	23	15	14	34	46	40	37
13	13	8.6	8.3	5.9	22	23	15	12	23	41	36	30
14	23	8.6	7.0	5.9	18	78	14	12	29	38	34	28
15	15	8.3	6.7	5.6	16	36	14	11	24	35	32	27
16	14	8.3	6.4	9.3	15	66	19	11	47	33	30	26
17	12	8.3	6.4	6.7	14	38	16	10	30	51	29	25
18	12	8.3	6.4	5.3	14	29	13	10	26	33	28	25
19	11	7.9	6.1	5.0	13	27	30	9.7	23	30	28	24
20	14	7.6	6.7	5.0	13	25	18	9.7	22	39	27	24
21	13	7.9	6.1	5.0	13	25	15	10	23	30	34	24
22	18	7.9	6.1	5.3	12	23	18	11	21	27	48	23
23	13	8.3	5.9	4.7	12	22	15	16	42	26	31	23
24	13	9.6	5.3	4.7	12	22	13	12	34	63	27	22
25	11	9.6	5.3	4.7	11	26	13	9.7	29	36	27	24
26	10	8.3	5.0	4.7	11	21	12	9.6	24	29	33	22
27	10	7.6	5.0	4.4	23	20	12	14	33	27	31	21
28	10	10	5.3	5.0	15	19	12	30	27	26	27	23
29	10	------	5.0	13	125	19	12	14	65	29	25	21
30	10	------	5.0	42	70	19	11	12	53	31	24	20
31	9.6	------	5.0	------	49	------	11	12	------	30	------	20
TOTAL	386.1	254.8	222.7	214.1	871.3	925	490	403.7	959	1,336	1,089	822
MEAN	12.5	9.10	7.18	7.14	28.1	30.8	15.8	13.0	32.0	43.1	36.3	26.5
MAX	23	14	22	42	125	78	30	30	65	89	73	59
MIN	9.1	7.6	5.0	4.4	5.6	19	11	9.6	15	26	24	20
CFSM	1.64	1.19	.94	.94	3.69	4.04	2.07	1.71	4.20	5.66	4.76	3.48
IN.	1.89	1.24	1.09	1.05	4.25	4.52	2.39	1.97	4.68	6.52	5.32	4.01
AC-FT	766	505	442	425	1,730	1,830	972	801	1,900	2,650	2,160	1,630

CAL YR 1970 TOTAL 7,973.7 MEAN 21.8 MAX 125 MIN 4.4 CFSM 2.86 IN 38.93 AC-FT 15,820
WTR YR 1970 TOTAL 7,422.7 MEAN 20.3 MAX 152 MIN 4.4 CFSM 2.66 IN 36.24 AC-FT 14,720

PEAK DISCHARGE (BASE, 1,900 CFS).--May 29 (1500) 2,280 cfs (5.98 ft).

RIO CAMUY BASIN

50014000 Río Criminales near Lares, P.R.

LOCATION--Lat 18° 17' 57", long 66° 49' 22", at bridge on Highway 111 (km. 18.6), 0.7 mile upstream from Río Camuy, and 3.6 miles east of Lares.

DRAINAGE AREA.--4.68 sq mi.

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), June 1969 to December 1970 (discontinued as a continuous record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Altitude of gage is 961 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 1,800 cfs June 14 (gage height, 8.75 ft), on basis of slope-area measurement of peak flow; minimum, 2.8 cfs Apr. 20, 21.

Period of record: Maximum discharge, 2,300 cfs Oct. 27, 1969 (gage height, 9.33 ft), on basis of slope-area measurement of peak flow; minimum 2.8 cfs Apr. 20, 21, 1970.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.9	5.9	4.6	3.7	10	45	14	21	41	34	39	16
2	7.5	5.9	4.9	3.6	6.8	30	11	13	17	23	66	16
3	7.5	5.6	4.9	4.5	6.2	20	18	12	13	20	24	16
4	7.5	5.9	4.2	3.9	10	17	12	11	11	23	19	15
5	7.0	6.6	3.9	3.6	18	15	11	10	25	27	18	15
6	7.0	5.9	3.9	4.2	40	16	10	9.4	56	45	76	14
7	7.0	5.9	3.5	3.9	12	13	9.5	11	91	50	27	15
8	7.5	5.6	3.9	3.2	27	12	9.5	11	54	55	25	17
9	7.0	5.2	3.9	4.9	50	12	9.0	10	23	43	44	20
10	7.5	5.2	3.9	4.6	26	70	9.5	13	26	34	37	32
11	15	5.6	18	3.7	17	23	9.0	22	73	30	43	55
12	8.8	5.2	7.5	3.3	15	16	9.0	12	33	27	28	50
13	8.5	5.2	4.6	3.3	13	14	8.5	11	22	25	24	30
14	13	5.2	4.2	3.9	12	94	8.5	10	20	23	24	23
15	8.8	4.9	3.9	4.2	11	30	8.5	9.5	18	22	22	20
16	8.5	4.9	4.6	7.5	10	36	12	9.2	20	22	20	19
17	7.5	4.6	3.9	4.6	9.6	24	9.0	10	17	31	19	18
18	7.0	4.6	4.2	3.5	9.2	19	12	11	15	22	18	17
19	7.0	4.6	4.2	3.2	9.0	17	7.2	12	14	20	19	17
20	14	4.0	4.6	3.2	8.5	16	10	12	13	25	18	17
21	8.8	4.0	4.2	3.3	8.5	16	10	13	14	20	24	16
22	8.8	4.4	4.0	3.5	8.0	14	9.0	12	13	18	31	16
23	7.9	4.9	4.0	3.2	8.0	14	9.0	14	45	17	20	16
24	7.5	5.9	3.8	3.2	7.6	13	10	10	22	43	18	17
25	7.0	5.6	3.8	3.5	7.6	13	9.5	9.2	19	23	22	18
26	6.6	4.9	3.7	4.0	7.6	13	9.2	8.5	16	19	33	17
27	6.6	4.6	3.7	4.2	10	12	8.8	13	19	18	25	16
28	6.6	6.3	4.2	4.6	8.5	12	8.6	25	16	17	20	17
29	6.3	------	3.9	12	29	12	8.8	12	30	23	18	16
30	6.3	------	3.8	21	35	11	9.0	11	52	24	17	15
31	6.3	------	3.7	------	30	------	11	11	------	21	------	15
TOTAL	250.2	147.1	144.1	143.0	480.1	669	310.1	378.8	848	844	838	621
MEAN	8.07	5.25	4.65	4.77	15.5	22.3	10.0	12.2	28.3	27.2	27.9	20.0
MAX	15	6.6	18	21	50	94	18	25	91	55	76	55
MIN	6.3	4.0	3.5	3.2	6.2	11	7.2	8.5	11	17	17	14
CFSM	1.72	1.12	.99	1.02	3.31	4.77	2.14	2.61	6.05	5.81	5.96	4.27
IN.	1.99	1.17	1.15	1.14	3.82	5.32	2.47	3.01	6.74	6.71	6.66	4.94
AC-FT	496	292	286	284	952	1,330	615	751	1,680	1,670	1,660	1,230

CAL YR 1970 TOTAL 5,673.4 MEAN 15.5 MAX 94 MIN 3.2 CFSM 3.31 IN 45.11 AC-FT 11,250
WTR YR 1970 TOTAL 4,870.0 MEAN 13.3 MAX 94 MIN 3.2 CFSM 2.84 IN 38.72 AC-FT 9,660

RIO CAMUY BASIN

50016000 Río Camuy near Camuy, P.R.

LOCATION.--Lat 18° 28' 29", long 66° 49' 46", at Hatillo-Camuy pumping station, 1.3 miles upstream from bridge on Highway 2, and 1.3 miles southeast of Camuy.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,530 cfs Dec. 10 (gage height, 16.88 ft), from rating curve extended above 1,000 cfs on basis of step-backwater analysis; minimum daily, 36 cfs Apr. 3.

Period of record: Maximum discharge, 5,690 cfs Nov. 9, 1969 (gage height, 17.15 ft), from rating curve extended above 1,000 cfs on basis of step-backwater analysis; minimum daily, 36 cfs Apr. 3, 1970.

REMARKS.--Records poor prior to July 1 and fair thereafter. Diversion at pumping station for municipal water supply.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	89	96	101	37	222	466	84	73	342	847	240	184
2	72	148	80	38	87	799	87	108	1,070	432	457	152
3	66	115	82	36	61	275	80	82	179	279	590	131
4	63	83	105	39	87	221	83	136	111	221	322	115
5	63	133	196	39	72	158	81	141	169	279	384	106
6	65	161	231	38	228	159	81	68	678	817	455	97
7	70	191	128	50	714	213	79	62	929	1,820	1,180	126
8	75	134	65	70	522	141	80	64	1,630	1,340	907	950
9	73	82	58	100	404	127	79	110	802	975	1,820	720
10	131	63	57	220	760	184	77	86	414	600	2,680	3,760
11	943	54	53	180	251	622	79	283	692	436	1,310	2,880
12	555	105	170	120	292	198	75	336	485	380	982	3,390
13	159	100	71	100	225	142	79	92	288	292	450	1,560
14	1,050	70	57	95	152	938	62	114	220	246	296	1,020
15	422	60	50	90	126	2,680	61	111	271	220	228	720
16	225	56	48	90	113	793	75	107	360	277	178	525
17	163	52	45	110	107	424	98	125	555	328	156	331
18	141	51	44	130	101	221	78	104	358	306	134	275
19	115	62	42	140	97	165	68	88	196	240	118	267
20	99	48	40	110	91	134	102	81	187	356	115	224
21	127	46	40	80	88	119	84	82	306	294	278	207
22	91	47	39	44	85	116	92	80	492	205	600	202
23	134	56	42	46	83	99	82	111	475	183	855	184
24	169	60	40	47	81	92	76	107	739	220	300	173
25	111	54	39	46	75	100	70	91	733	390	260	162
26	91	48	39	48	73	143	72	95	251	225	816	161
27	99	46	39	51	74	100	68	356	180	190	933	151
28	98	60	38	52	138	91	73	598	438	292	565	154
29	80	------	37	52	450	88	71	138	868	354	535	166
30	79	------	37	73	1,200	85	69	88	1,300	462	286	142
31	80	------	37	------	754	------	69	77	------	326	------	130
TOTAL	5,798	2,281	2,150	2,371	7,813	10,093	2,414	4,194	15,718	13,832	18,430	19,365
MEAN	187	81.5	69.4	79.0	252	336	77.9	135	524	446	614	625
MAX	1,050	191	231	220	1,200	2,680	102	598	1,630	1,820	2,680	3,760
MIN	63	46	37	36	61	85	61	62	111	183	115	97
AC-FT	11,500	4,520	4,260	4,700	15,500	20,020	4,790	8,320	31,180	27,440	36,560	38,410

CAL YR 1970 TOTAL 104,459 MEAN 286 MAX 3,760 MIN 36 AC-FT 207,200
WTR YR 1970 TOTAL 85,867 MEAN 235 MAX 2,680 MIN 36 AC-FT 170,300

RIO GRANDE DE ARECIBO BASIN

50021000 Río Pellejas at Central Pellejas, P.R.

LOCATION.--Lat 18° 12' 07", long 66° 42' 16", near Highway 524, 0.1 mile upstream from unnamed tributary and diversion tunnel, 1.0 mile upstream from Pellejas Dam, and 2.9 miles northeast of Adjuntas.

DRAINAGE AREA.--5.46 sq mi.

PERIOD OF RECORD.--January 1963 to May 1968 (monthly measurements only), June 1968 to September 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,150 ft (from topographic map).

EXTREMES.--Maximum discharge during period January to September, current year, 3,300 cfs Jan. 13 (gage height, 7.80 ft), from rating curve extended above 100 cfs on basis of slope-area measurements of peak flow; minimum, 4.8 cfs Apr. 26.

Period of record: Maximum discharge, 4,880 cfs Nov. 9, 1969 (gage height, 9.20 ft), from rating curve extended above 100 cfs on basis of slope-area measurements; minimum observed, 2.8 cfs Jan. 18 and May 2, 1968, from discharge measurements.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	13	13	8.8	6.4	5.2	6.4	9.8	8.5	22			
2	13	12	8.4	6.2	5.0	6.4	9.6	7.6	25			
3	13	11	8.0	6.1	5.8	6.2	9.8	9.3	20			
4	12	11	7.6	6.1	7.4	8.5	10	10	16			
5	12	10	7.8	6.0	5.5	7.1	9.8	9.1	83			
6	11	10	7.8	6.0	5.5	6.4	9.3	8.2	32			
7	11	10	7.8	6.0	11	10	9.1	8.0	21			
8	11	9.9	7.8	5.8	42	11	8.9	8.0	17			
9	11	9.9	7.8	6.4	67	9.6	9.1	7.8	16			
10	12	9.7	7.6	6.6	27	10	9.1	7.6	16			
11	15	9.3	7.6	6.2	18	7.8	14	22	27			
12	12	9.3	7.6	6.0	13	35	13	13	17			
13	141	9.3	7.4	6.2	10	61	10	12	16			
14	24	8.8	7.4	6.2	8.9	25	9.4	10	15			
15	16	8.8	7.2	6.0	8.2	12	15	9.6	15			
16	14	8.8	7.2	13	7.8	61	25	12	15			
17	12	8.6	7.0	8.2	7.4	38	14	9.8	17			
18	11	8.6	7.0	6.4	7.3	20	10	9.6	17			
19	10	8.4	7.2	6.0	7.4	16	24	10	13			
20	11	8.4	7.2	5.8	7.4	14	14	11	12			
21	13	8.4	7.0	6.0	7.1	14	11	9.8	12			
22	11	8.2	6.8	5.6	7.1	12	10	13	11			
23	11	8.2	6.8	5.5	6.9	11	9.4	22	11			
24	18	8.8	6.8	5.4	7.3	10	9.0	13	10			
25	13	8.8	6.8	5.4	6.7	11	8.6	10				
26	12	8.0	6.6	5.2	6.7	15	8.4	9.8				
27	11	8.0	6.6	5.2	6.7	11	11	19				
28	10	8.8	7.0	5.2	8.5	10	10	67				
29	10	------	6.6	5.4	8.5	10	8.5	18				
30	10	------	6.4	5.5	7.1	9.8	7.6	25				
31	11	------	6.4	------	6.5	------	7.6	21	------		------	
TOTAL	515	262.0	226.0	186.0	355.9	485.2	344.0	430.7				
MEAN	16.6	9.36	7.29	6.20	11.5	16.2	11.1	13.9				
MAX	141	13	8.8	13	67	61	25	67				
MIN	10	8.0	6.4	5.2	5.0	6.2	7.6	7.6				
CFSM	3.04	1.71	1.34	1.14	2.11	2.97	2.03	2.55				
IN.	3.51	1.79	1.54	1.27	2.43	3.31	2.34	2.93				
AC-FT	1,020	520	448	369	706	962	682	854				

RIO GRANDE DE ARECIBO BASIN

50021500 Río Pellejas near Utuado, P.R.

LOCATION.--Lat 18° 13' 53", long 66° 42' 56", on right bank, 600 ft upstream from bridge on Highway 10, 1,000 ft upstream from mouth, and 2.6 miles south of Utuado.

DRAINAGE AREA.--9.55 sq mi.

PERIOD OF RECORD.--July 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 722 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 7,700 cfs Oct. 9 (gage height, 14.82 ft, from floodmark), on basis of slope-area measurement of peak flow; minimum, 0.7 cfs several days in Apr. and May.

Period of record: Maximum discharge, 7,700 cfs Oct. 9, 1970 (gage height, 14.82 ft, from floodmark), on basis of slope-area measurement of peak flow; minimum 0.4 cfs many days in Sept. 1969.

REMARKS.--Records good. Flow regulated by Lago Pellejas, 2.2 miles upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.4	2.2	1.7	.90	1.0	5.2	2.4	3.3	12	202	250	21
2	2.2	2.2	1.6	.90	.80	2.5	2.0	1.5	40	176	200	29
3	2.2	2.0	1.3	.90	.80	1.8	1.7	1.9	9.3	105	250	35
4	2.2	1.9	1.2	.90	1.7	1.6	2.7	1.4	1.0	22	150	14
5	2.0	2.0	1.2	.90	.90	1.4	2.4	1.4	158	73	100	52
6	2.0	2.0	1.2	.90	2.2	1.3	1.7	2.0	218	206	502	10
7	2.0	1.9	1.1	.80	2.2	1.2	1.4	1.4	88	244	371	30
8	2.0	1.8	1.1	.80	44	1.2	1.3	2.0	69	411	344	25
9	2.0	1.8	1.1	.90	100	1.1	1.3	1.7	60	1,060	344	20
10	2.2	1.7	1.1	.90	21	25	1.4	1.4	64	820	338	30
11	4.6	1.7	1.8	.90	4.1	11	1.3	1.7	97	400	183	20
12	2.5	1.7	1.3	.90	2.7	6.2	1.3	1.4	85	250	181	15
13	160	1.7	1.2	.80	1.8	5.4	1.3	3.3	101	181	191	13
14	55	1.6	1.2	.80	1.7	33	1.3	3.0	82	166	164	15
15	3.8	1.6	1.1	.90	1.4	13	1.2	1.3	111	147	135	25
16	3.3	1.6	1.1	9.0	1.3	65	9.8	1.0	85	137	128	13
17	3.4	1.4	1.1	1.8	1.3	26	1.4	1.4	49	137	120	12
18	3.1	1.6	1.1	1.0	1.3	76	1.0	1.3	106	117	57	11
19	3.1	1.4	1.2	.90	1.2	51	58	1.3	80	109	8.1	13
20	3.4	1.4	1.2	.90	1.2	4.6	9.8	1.3	79	195	7.7	12
21	2.9	1.4	1.1	.90	1.2	5.1	3.0	1.3	93	255	8.5	10
22	2.7	1.4	1.0	.90	1.2	4.3	3.3	2.4	79	120	90	13
23	2.5	1.4	1.0	.80	1.2	3.6	2.4	4.3	79	102	35	14
24	2.5	1.8	1.0	.80	1.1	3.3	2.0	2.4	108	110	8.1	13
25	2.5	1.7	1.0	.80	1.0	3.3	13	1.4	126	179	15	12
26	2.4	1.4	1.0	.80	1.0	2.7	3.6	1.4	91	121	29	13
27	2.4	1.3	.90	.70	1.2	2.7	1.7	25	121	94	15	13
28	2.4	1.7	1.0	.70	.90	2.4	1.4	208	96	84	7.7	28
29	2.2	------	.90	3.1	.80	2.0	1.3	9.6	104	183	5.8	5.8
30	2.2	------	.90	2.0	1.0	2.0	1.3	1.3	210	189	7.3	5.5
31	2.2	------	1.0	------	21	------	1.3	9.3	------	322	------	5.5
TOTAL	290.3	47.3	35.70	38.20	224.20	364.9	139.0	301.4	2,701.3	6,917	4,245.2	547.8
MEAN	9.36	1.69	1.15	1.27	7.23	12.2	4.48	9.72	90.0	223	142	17.7
MAX	160	2.2	1.8	9.0	100	76	58	208	218	1,060	502	52
MIN	2.0	1.3	.90	.70	.80	1.1	1.0	1.0	1.0	22	5.8	5.5
CFSM	.98	.18	.12	.13	.76	1.28	.47	1.02	9.43	23.4	14.9	1.85
IN.	1.13	.18	.14	.15	.87	1.42	.54	1.17	10.52	26.95	16.54	2.13
AC-FT	576	94	71	76	445	724	276	598	5,360	13,720	8,420	1,090

CAL YR 1970 TOTAL 15,852.30 MEAN 43.4 MAX 1,060 MIN .70 CFSM 4.55 IN 61.76 AC-FT 31,440
WTR YR 1970 TOTAL 7,611.20 MEAN 20.9 MAX 300 MIN .70 CFSM 2.19 IN 29.65 AC-FT 15,100

RIO GRANDE DE ARECIBO BASIN

50023000 Río Viví near Central Pellejas, P.R.

LOCATION.--Lat 18° 12' 52", long 66° 40' 25", at Highway 605 bridge, 2.0 miles upstream from Viví Dam, and 2.2 miles northeast of Central Pellejas.

DRAINAGE AREA.--5.66 sq mi.

PERIOD OF RECORD.--January 1963 to June 1969 (monthly measurements only), July 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,380 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 4,280 cfs Oct. 9 (gage height, 9.44 ft), from rating curve extended above 100 cfs on basis of slope-area measurement of peak flow; minimum, 3.4 cfs Apr. 22, 23.
Period of record: Maximum discharge, 4,280 cfs Oct. 9, 1970 (gage height, 9.44 ft), from rating curve extended above 100 cfs on basis of slope-area measurement of peak flow; minimum, 3.4 cfs Apr. 22, 23, 1970.

REMARKS.--Records good except for period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10	11	7.0	3.7	4.1	9.2	15	11	35	53	46	25
2	10	11	8.8	3.7	3.5	7.3	14	8.8	34	58	41	25
3	9.9	9.5	11	3.7	4.1	7.0	14	10	23	37	41	24
4	9.9	9.2	7.0	3.7	8.2	6.4	15	12	18	35	40	24
5	9.9	9.2	6.6	3.7	4.3	6.4	13	9.9	110	55	29	24
6	9.6	9.2	11	3.5	4.1	6.4	13	9.6	61	101	68	23
7	9.4	9.2	8.2	3.5	17	6.7	12	9.4	39	130	41	25
8	9.4	9.2	6.8	3.5	71	5.8	12	9.9	32	233	35	30
9	9.4	8.8	7.1	3.9	109	5.8	12	9.9	29	386	45	27
10	9.4	8.8	6.2	4.1	56	51	12	9.2	30	156	50	50
11	14	8.8	7.6	4.3	28	27	11	52	42	120	38	37
12	11	8.8	7.0	3.7	19	19	11	16	39	80	34	40
13	100	7.0	5.8	3.7	15	16	11	13	33	63	42	33
14	30	7.2	5.4	3.9	12	38	11	9.5	29	58	35	28
15	20	7.0	5.6	3.7	11	44	11	8.5	26	51	30	27
16	16	6.7	7.0	7.6	10	97	18	9.0	24	47	28	26
17	12	6.7	5.5	5.3	9.2	68	15	7.6	30	44	32	25
18	11	6.4	7.6	4.3	88	37	12	7.3	25	38	30	24
19	11	6.4	7.0	3.5	8.5	29	26	7.3	22	35	34	23
20	11	6.4	6.4	3.5	8.2	23	12	7.0	22	40	40	23
21	12	6.1	5.9	3.5	7.9	25	11	7.0	21	34	32	22
22	11	6.4	5.4	3.5	7.6	21	11	10	22	30	28	21
23	11	6.1	5.2	4.1	7.3	19	10	19	24	28	26	20
24	11	7.3	5.2	3.9	7.3	17	9.5	10	30	30	23	20
25	10	7.6	4.9	3.9	7.0	17	14	7.6	35	30	88	19
26	9.9	6.7	4.7	3.9	6.7	21	10	7.3	26	33	52	19
27	9.9	9.0	4.4	3.7	7.3	17	9.4	19	23	27	32	18
28	9.5	9.6	4.5	3.7	6.7	15	9.0	93	21	25	30	18
29	9.5	------	4.4	7.6	6.4	17	8.5	19	31	53	28	18
30	9.2	------	4.3	4.1	7.3	16	8.5	16	74	51	27	17
31	9.2	------	4.3	------	13	------	8.5	20	------	35	------	17
TOTAL	445.1	225.3	197.8	122.4	574.7	695.0	379.4	464.8	1,010	2,196	1,145	772
MEAN	14.4	8.05	6.38	4.08	18.5	23.2	12.2	15.0	33.7	70.8	38.2	24.9
MAX	100	11	11	7.6	109	97	26	93	110	386	88	50
MIN	9.2	6.1	4.3	3.5	3.5	5.8	8.5	7.0	18	25	23	17
CFSM	2.54	1.42	1.13	.72	3.27	4.10	2.16	2.65	5.96	12.5	6.75	4.40
IN.	2.93	1.48	1.30	.80	3.78	4.57	2.49	3.06	6.64	14.44	7.53	5.07
AC-FT	883	447	392	243	1,140	1,380	753	922	2,000	4,360	2,270	1,530

CAL YR 1970 TOTAL 8,227.5 MEAN 22.5 MAX 386 MIN 3.5 CFSM 3.98 IN 54.08 AC-FT 16,320
WTR YR 1970 TOTAL 7,300.4 MEAN 20.0 MAX 184 MIN 3.5 CFSM 3.53 IN 47.99 AC-FT 14,480

NOTE.--No gage-height record Feb. 26 to Apr. 1.

RIO GRANDE DE ARECIBO BASIN

50027200 Río Grande de Arecibo below Lago Dos Bocas, P.R.

LOCATION.--Lat 18° 20' 17", long 66° 40' 04", on right bank at powerhouse at Dos Bocas Dam, and 5.6 miles northeast of Utuado.

DRAINAGE AREA.--169 sq mi.

PERIOD OF RECORD.--October 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 6,580 cfs Oct. 9 (gage height, 15.48 ft), from rating curve extended above 2,000 cfs; minimum daily, 16 cfs May 20.

Period of record: Maximum discharge, 6,580 cfs Oct. 9, 1970 (gage height, 15.48 ft), from rating curve extended above 2,000 cfs; minimum daily, 16 cfs Dec. 31, 1969, and May 20, 1970.

REMARKS.--Records good. Flow regulated for power generation by Lago Dos Bocas (capacity, about 22,000 acre-ft).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	246	225	21	160	254	1,280	443	99	356	1,740	1,290	223
2	47	385	300	210	216	1,570	623	29	581	1,410	704	739
3	17	276	289	22	155	1,310	267	199	617	1,690	878	722
4	17	207	207	22	427	819	21	406	29	743	408	101
5	344	345	630	21	361	338	28	240	724	1,110	179	286
6	245	257	450	130	141	439	804	408	1,690	1,740	979	285
7	52	138	266	240	743	354	610	223	1,730	2,700	1,580	821
8	96	20	203	230	847	231	583	347	1,160	4,280	1,650	1,050
9	172	131	317	260	1,260	248	381	377	1,110	7,430	2,810	970
10	61	324	313	280	1,180	158	178	641	1,090	4,170	2,620	1,550
11	503	559	139	210	1,230	1,080	107	389	723	2,660	1,750	1,670
12	752	338	296	25	1,130	565	25	444	1,250	2,240	1,650	2,670
13	541	383	210	190	435	139	255	314	827	1,980	1,480	1,870
14	744	18	142	23	372	1,080	191	217	1,120	1,530	1,070	1,590
15	553	19	121	22	473	1,740	413	133	1,210	545	458	1,570
16	75	459	286	200	156	1,390	162	31	892	884	570	940
17	126	135	142	350	258	1,550	310	426	1,230	959	700	545
18	222	226	150	150	600	1,530	246	179	455	753	961	827
19	494	561	160	200	193	1,470	220	30	367	487	904	518
20	655	423	180	250	16	893	593	364	278	362	1,000	263
21	625	201	170	300	87	19	342	407	1,180	650	401	737
22	213	20	21	560	322	631	251	563	841	529	543	493
23	373	253	21	280	17	690	256	254	872	983	950	464
24	55	44	180	380	33	205	27	397	539	488	906	201
25	170	418	22	47	67	489	425	72	1,240	461	720	525
26	425	153	240	157	206	541	257	39	1,450	1,430	810	397
27	544	164	22	265	555	484	510	182	1,310	1,330	1,390	333
28	539	21	21	358	670	100	321	1,420	1,030	783	996	912
29	352	------	240	232	88	578	198	1,480	983	924	1,070	500
30	310	------	21	256	732	426	396	294	1,350	1,570	938	769
31	43	------	150	------	945	------	317	711	------	1,550	------	118
TOTAL	9,611	6,703	5,930	6,030	14,169	22,347	9,760	11,315	28,234	50,111	32,365	24,659
MEAN	310	239	191	201	457	745	315	365	941	1,616	1,079	795
MAX	752	561	630	560	1,260	1,740	804	1,480	1,730	7,430	2,810	2,670
MIN	17	18	21	21	16	19	21	29	29	362	179	101
CFSM	1.83	1.41	1.13	1.19	2.70	4.41	1.86	2.16	5.57	9.56	6.38	4.70
IN.	2.12	1.48	1.31	1.33	3.12	4.92	2.15	2.49	6.21	11.03	7.12	5.43
AC-FT	19,060	13,300	11,760	11,960	28,100	44,330	19,360	22,440	56,000	99,400	64,200	48,910

CAL YR 1970 TOTAL 221,234 MEAN 606 MAX 7,430 MIN 16 CFSM 3.59 IN 48.70 AC-FT 438,800
WTR YR 1970 TOTAL 178,069 MEAN 488 MAX 2,440 MIN 16 CFSM 2.89 IN 39.20 AC-FT 353,200

NOTE.--No gage-height record Mar. 18 to Apr. 23.

RIO GRANDE DE ARECIBO BASIN

50028000 Río Tanamá near Utuado, P.R.

LOCATION.--Lat 18° 18' 02", long 66° 46' 58", on downstream side of left abutment of bridge on Highway 111, 11.2 miles upstream from natural tunnel, 1.5 miles northeast of Angeles, and 5.8 miles northwest of Utuado.

DRAINAGE AREA.--18.4 sq mi.

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month only by P.R. Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 942.3 ft above sea level (USGS BM 65-Y-1934). Prior to Nov. 17, 1966, staff gage at same site and datum. Crest-stage gage installed, Feb. 6, 1962.

AVERAGE DISCHARGE.--11 years (1960-70), 51.8 cfs (38.23 inches per year, 37,530 acre-ft per year); median of yearly mean discharges, 53.9 cfs (39.78 inches per year, 39,050 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,540 cfs May 9 (gage height, 10.24 ft), from rating curve extended as explained below; minimum, 14.6 cfs Apr. 7, 8.

Period of record: Maximum discharge, 8,950 cfs May 17, 1963 (gage height, 13.29 ft, from floodmark), from rating curve extended above 500 cfs on basis of slope-area measurement of peak flow at gage height 12.45 ft and contracted-opening measurement at gage height 13.29 ft; minimum, 9.4 cfs May 25-27, 1967.

REMARKS.--Records good.

REVISIONS.--WRD Puerto Rico 1968: 1960-61 (P), 1962 (M), 1963 (P), 1965-66 (P), 1967 (M).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	32	34	29	17	25	212	45	58	61	116	68	62
2	32	37	32	18	19	108	39	44	39	95	79	62
3	31	31	29	17	18	76	41	36	34	57	61	60
4	34	27	26	16	30	63	41	31	31	79	55	59
5	33	38	23	16	53	56	38	27	46	74	53	58
6	31	31	22	16	250	57	36	28	162	105	306	57
7	30	29	21	15	94	50	34	27	143	116	57	58
8	30	27	22	15	185	46	33	31	68	151	51	75
9	30	27	21	18	435	44	33	28	56	158	88	69
10	31	27	21	19	102	152	32	29	54	111	88	187
11	71	25	70	17	84	70	32	49	118	97	175	160
12	49	25	37	16	91	55	30	31	67	84	67	125
13	61	24	26	16	70	53	30	32	54	78	54	102
14	87	24	24	16	57	301	29	32	57	72	51	95
15	57	23	23	17	48	103	28	27	53	67	49	86
16	49	23	23	58	44	161	38	35	55	65	47	83
17	44	23	23	31	41	88	32	28	57	94	46	78
18	42	23	23	19	39	69	29	25	47	69	44	76
19	40	23	23	19	39	62	49	25	41	62	43	75
20	59	23	24	18	35	57	43	24	39	77	42	71
21	58	24	22	19	35	59	33	25	44	68	54	68
22	52	24	22	20	34	54	37	27	39	59	72	67
23	44	24	21	18	34	51	35	35	69	55	50	64
24	45	28	21	17	33	49	30	30	56	110	48	62
25	40	29	21	18	33	48	59	24	57	84	46	61
26	39	23	20	17	32	48	39	23	48	64	58	60
27	36	23	20	16	50	47	31	39	56	57	76	59
28	34	34	21	16	41	42	29	86	54	53	74	193
29	34	------	19	19	85	45	27	27	66	59	68	67
30	33	------	19	39	112	44	27	31	52	76	64	56
31	32	------	18	------	350	------	27	29	------	90	------	54
TOTAL	1,320	753	766	593	2,598	2,370	1,086	1,023	1,823	2,602	2,134	2,509
MEAN	42.6	26.9	24.7	19.8	83.8	79.0	35.0	33.0	60.8	83.9	71.1	80.9
MAX	87	38	70	58	435	301	59	86	162	158	306	193
MIN	30	23	18	15	18	42	27	23	31	53	42	54
CFSM	2.32	1.46	1.34	1.08	4.55	4.29	1.90	1.79	3.30	4.56	3.86	4.40
IN.	2.67	1.52	1.55	1.20	5.25	4.79	2.20	2.07	3.69	5.26	4.31	5.07
AC-FT	2,620	1,490	1,520	1,180	5,150	4,700	2,150	2,030	3,620	5,160	4,230	4,980

CAL YR 1970 TOTAL 19,577 MEAN 53.6 MAX 435 MIN 15 CFSM 2.91 IN 39.58 AC-FT 38,830
WTR YR 1970 TOTAL 19,010 MEAN 52.1 MAX 435 MIN 15 CFSM 2.83 IN 38.44 AC-FT 37,710

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-09	1620	10.24	5,540	05-31	1500	8.73	4,080	06-14	1930	8.71	4,070	11-06	1720	10.00	5,300

RIO GRANDE DE ARECIBO BASIN

50028400 Río Tanamá at Charco Hondo, P.R.

LOCATION.--Lat 18° 24' 52", long 66° 42' 52", on right bank at abandoned power house, 1.5 miles upstream from mouth, and 4.1 miles south of Arecibo.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--April 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 60 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 3,010 cfs May 9 (gage height, 11.11 ft), from rating curve extended above 1,000 cfs; minimum daily, 38 cfs several days in April.

Period of record: Maximum discharge, 4,120 cfs Apr. 21, 1969 (gage height, 12.22 ft, from floodmark), from rating curve extended above 1,000 cfs; minimum daily, 38 cfs several days in April 1970.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Diversion above station for municipal supply of Arecibo.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	66	62	65	40	57	440	81	87	130	370	127	136
2	66	75	75	42	42	333	79	95	203	239	133	128
3	64	64	65	40	40	160	78	78	99	180	122	123
4	66	60	60	39	49	132	82	74	91	149	102	121
5	62	85	54	39	70	111	82	73	149	184	107	120
6	60	70	50	38	328	110	77	66	388	397	301	117
7	60	65	48	38	198	119	74	64	359	521	237	116
8	58	60	47	38	267	95	73	72	303	458	207	186
9	58	60	46	42	534	86	71	106	193	405	433	175
10	56	58	46	47	332	189	70	77	137	280	640	150
11	172	56	150	42	156	148	70	148	196	212	568	130
12	136	54	70	40	229	109	68	171	168	174	430	120
13	69	53	56	39	176	111	68	78	138	152	243	115
14	163	52	52	38	120	553	66	77	117	139	205	112
15	86	52	50	40	102	645	65	68	115	130	171	110
16	70	50	48	76	94	473	78	68	123	130	153	107
17	67	50	47	96	88	233	82	76	119	195	158	105
18	64	46	46	46	82	169	67	66	148	144	134	100
19	62	44	45	43	79	131	71	64	96	115	128	100
20	66	44	48	41	75	114	91	63	87	113	126	98
21	78	50	46	40	74	109	74	64	93	157	188	96
22	72	44	45	43	72	103	71	72	106	118	217	96
23	66	42	44	40	70	92	77	76	167	107	192	94
24	64	40	44	41	71	88	68	80	225	157	135	92
25	62	70	43	39	70	88	85	66	321	142	186	92
26	62	55	43	40	69	92	89	63	174	124	363	90
27	60	52	45	38	76	86	70	75	118	100	293	88
28	58	80	43	38	114	80	69	273	197	95	197	190
29	58	------	42	40	172	78	65	123	207	97	175	90
30	63	------	41	51	283	82	64	84	278	140	158	86
31	62	------	41	------	478	------	63	71	------	160	------	84
TOTAL	2,276	1,593	1,645	1,314	4,667	5,359	2,288	2,718	5,245	6,084	6,829	3,567
MEAN	73.4	56.9	53.1	43.8	151	179	73.8	87.7	175	196	228	115
MAX	172	85	150	96	534	645	91	273	388	521	640	190
MIN	56	40	41	38	40	78	63	63	87	95	102	84
AC-FT	4,510	3,160	3,260	2,610	9,260	10,630	4,540	5,390	10,400	12,070	13,550	7,080

CAL YR 1970 TOTAL 43,585 MEAN 119 MAX 645 MIN 38 AC-FT 86,450
WTR YR 1970 TOTAL 42,078 MEAN 115 MAX 645 MIN 38 AC-FT 83,460

NOTE.--No gage-height record Jan. 24 to Apr. 15.

RIO GRANDE DE ARECIBO BASIN

50029000 Río Grande de Arecibo at Central Cambalache, P.R.

LOCATION.--Lat 18° 27' 20", long 66° 42' 10", at bridge on unimproved road, about 400 yards upstream from Central Cambalache, near Highway 2, 1.6 miles southeast of Arecibo.

DRAINAGE.--Indeterminate.

PERIOD OF RECORD.--January 1963 to January 1965 (monthly measurements only), February 1965 to April 1969 (occasional measurements only), May 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 13 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 7,770 cfs Oct. 10 (gage height, 12.03 ft), from rating curve extended above 6,000 cfs; minimum daily, 98 cfs Mar. 25.

Period of record: Maximum discharge, 7,770 cfs Oct. 10, 1970 (gage height, 12.03 ft), from rating curve extended above 6,000 cfs; minimum daily, 98 cfs Mar. 25.

REMARKS.--Records fair. Flow regulated by Lago Dos Bocas about 12 miles upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	294	203	300	156	353	1,820	498	185	444	2,270	1,400	614
2	321	527	485	204	269	2,000	601	207	655	1,600	800	671
3	235	383	410	158	226	1,410	428	206	708	1,280	900	873
4	200	425	460	147	417	1,170	239	385	374	518	600	449
5	280	530	700	129	320	272	167	278	431	734	250	429
6	403	460	488	120	617	479	531	342	1,970	1,510	1,100	298
7	381	385	375	237	717	560	690	299	2,050	2,260	1,500	788
8	253	208	143	230	1,010	508	620	169	1,590	2,820	1,600	1,260
9	275	375	415	239	1,640	344	401	472	1,320	5,500	2,700	1,280
10	212	490	289	241	1,380	359	277	505	1,260	6,500	2,990	2,550
11	845	700	240	194	1,170	1,030	230	588	864	3,000	1,720	2,560
12	989	500	303	125	1,210	881	198	561	1,470	2,300	2,050	4,080
13	479	465	258	178	641	253	278	538	1,320	2,000	1,930	2,600
14	1,270	190	186	110	507	1,270	279	326	920	1,500	1,680	1,870
15	789	260	151	150	526	2,700	490	197	1,420	600	832	1,750
16	360	600	271	189	287	1,960	253	190	912	900	965	1,190
17	283	380	225	326	183	1,930	237	154	1,540	920	691	952
18	300	485	342	112	465	1,680	472	273	858	800	1,160	842
19	521	680	253	165	246	1,550	164	230	398	540	981	663
20	812	560	262	214	147	1,160	687	228	303	400	1,160	750
21	757	410	238	260	129	456	422	408	1,060	600	777	656
22	587	170	164	523	274	526	251	491	921	560	713	638
23	496	440	102	315	141	825	260	269	1,100	900	1,100	652
24	249	310	169	374	115	392	194	388	897	520	1,020	379
25	225	575	98	170	130	665	237	354	1,500	600	1,090	412
26	591	390	238	131	185	668	357	140	1,440	1,500	1,280	508
27	505	395	133	274	502	409	418	153	1,630	1,400	1,700	377
28	639	340	124	360	579	385	415	1,270	1,210	760	1,220	904
29	574	------	242	260	431	666	338	1,500	1,160	800	1,280	744
30	440	------	120	264	675	435	361	635	1,620	1,700	1,180	624
31	287	------	139	------	1,570	------	327	739	------	1,600	------	417
TOTAL	14,802	11,836	8,323	6,555	17,062	28,763	11,320	12,680	33,345	48,892	38,369	32,780
MEAN	477	423	268	219	550	959	365	409	1,112	1,577	1,279	1,057
MAX	1,270	700	700	523	1,640	2,700	690	1,500	2,050	6,500	2,990	4,080
MIN	200	170	98	110	115	253	164	140	303	400	250	298
AC-FT	29,360	23,480	16,510	13,000	33,840	57,050	22,450	25,150	66,140	96,980	76,100	65,020

CAL YR 1970 TOTAL 264,727 MEAN 725 MAX 6,500 MIN 98 AC-FT 525,100
WTR YR 1970 TOTAL 231,546 MEAN 634 MAX 3,550 MIN 98 AC-FT 459,300

NOTE.--No gage height record Feb. 4 to Mar. 5.

RIO GRANDE DE MANATI BASIN

50031200 Río Grande de Manatí near Morovis, P.R.

LOCATION.--Lat 18° 17' 45", long 66° 24' 47", on left bank, 0.1 mile downstream from Quebrada Perchas, 1.0 mile upstream from confluence with Río Sana Muerto, and 2.2 miles south of Morovis.

DRAINAGE AREA.--55.2 sq mi.

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 440 ft (from topographic map). Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

AVERAGE DISCHARGE.--6 years (1964-71), 136 cfs (33.46 inches per year, 98,530 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 35,000 cfs Oct. 9 (gage height, 20.3 ft, from floodmarks), from rating curve extended as explained below; minimum recorded, 35 cfs Apr. 29.

Period of record: Maximum discharge, 35,000 cfs Oct. 9, 1970 (gage height, 20.3 ft, from floodmarks), from rating curve extended above 200 cfs on basis of computations of flow over broad-crested weir, and indirect measurement of peak flow at 13.5, 16.0, and 20.3 ft; minimum, 22 cfs Apr. 19-21, 1965.

Revisions.--The maximum discharge for 1965 has been revised to 30,000 cfs Dec. 9, 1965 (gage height, 18.3 ft, from floodmarks); superseding figure published in "Water Records of Puerto Rico, 1964-67."

REMARKS.--Records good except for periods of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	82	65	74	40	106	1,520	65	55	92	600	300	230
2	82	92	66	40	53	472	62	55	80	450	320	210
3	80	70	68	39	43	188	58	55	74	250	350	200
4	80	65	64	39	66	133	173	57	70	200	200	190
5	78	72	58	38	66	121	109	55	210	500	250	180
6	76	67	56	38	108	121	74	54	200	3,600	450	170
7	76	67	54	37	535	99	61	57	190	3,000	600	160
8	74	64	50	37	1,730	91	54	55	110	4,200	500	300
9	74	65	49	40	2,000	88	101	60	230	10,000	1,700	500
10	76	65	48	56	820	86	58	64	100	1,800	1,500	2,000
11	316	102	50	50	400	86	54	54	180	1,000	700	900
12	268	108	52	43	290	84	53	53	220	700	600	1,700
13	154	65	49	41	310	78	52	70	300	500	800	800
14	196	62	48	43	180	76	52	79	150	400	500	450
15	156	61	47	45	121	99	51	54	110	350	400	350
16	124	60	46	52	110	319	339	74	100	320	350	330
17	104	57	45	62	93	228	206	68	110	300	300	310
18	93	55	44	54	84	184	102	54	120	270	250	280
19	86	53	52	50	78	142	78	50	90	250	200	260
20	84	51	62	47	78	110	68	49	110	220	250	240
21	82	51	56	46	78	112	67	48	130	300	350	220
22	80	52	47	45	76	104	72	120	80	250	400	210
23	82	53	43	44	74	86	68	130	100	220	500	200
24	78	62	42	42	72	82	65	80	120	200	300	190
25	76	55	41	45	68	95	61	60	250	400	250	180
26	74	52	40	38	64	91	67	50	200	350	500	175
27	72	50	40	37	62	76	64	70	120	250	900	170
28	72	60	47	36	68	68	70	1,300	110	180	450	165
29	76	------	44	35	259	65	65	200	200	190	300	160
30	68	------	42	192	229	65	58	120	400	400	250	155
31	67	------	41	------	248	------	55	100	------	500	------	150
TOTAL	3,186	1,801	1,565	1,451	8,569	5,169	2,582	3,450	4,556	32,150	14,720	11,735
MEAN	103	64.3	50.5	48.4	276	172	83.3	111	152	1,037	491	379
MAX	316	108	74	192	2,000	1,520	339	1,300	400	10,000	1,700	2,000
MIN	67	50	40	35	43	65	51	48	70	180	200	150
CFSM	1.87	1.16	.91	.88	5.00	3.12	1.51	2.01	2.75	18.8	8.90	6.87
IN.	2.15	1.21	1.05	.98	5.77	3.48	1.74	2.33	3.07	21.67	9.92	7.91
AC-FT	6,320	3,570	3,100	2,880	17,000	10,250	5,120	6,840	9,040	63,770	29,200	23,280

CAL YR 1970 TOTAL 90,934 MEAN 249 MAX 10,000 MIN 35 CFSM 4.51 IN 61.28 AC-FT 180,400
WTR YR 1970 TOTAL 55,032 MEAN 151 MAX 4,230 MIN 35 CFSM 2.74 IN 37.09 AC-FT 109,200

PEAK DISCHARGE (BASE, 3,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-08	1530	16.0	25,000	06-01	1700	10.30	13,000	10-09	--	20.3	35,000	12-10	--	13.5	19,000
05-09	--	Unknown	Unknown												

NOTE.--No gage-height record Feb. 26 to Apr. 22, Aug. 19 to Dec. 31.

RIO GRANDE DE MANATI BASIN

50031500 Río Sana Muerto near Orocovis, P.R.

LOCATION.--Lat 18° 16' 14", long 66° 24' 47", on right bank, 150 ft downstream from Quebrada Ciénaga, 2.5 miles upstream from mouth, and 3.1 miles northwest of Orocovis.

DRAINAGE AREA.--3.68 sq mi.

PERIOD OF RECORD.--April 1965 to October 1970 (discontinued).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,700 ft (from topographic map).

EXTREMES.--Maximum discharge recorded during period January to October, current year, 7,780 cfs May 8 (gage height, 12.2 ft), from rating curve extended above 20 cfs on basis of computation of flow over weir (but may have been more May 9 and October 9); minimum recorded, 1.0 cfs Apr. 1, result of regulation.

Period of record: Maximum discharge, 9,000 cfs, Nov. 21, 1965, and Nov. 9, 1969 (gage height, 13.0 ft, from floodmarks and recorded range in stage), from rating curve extended above 20 cfs on basis of computation of flow over broad-crested weir; minimum, 0.4 cfs May 31, 1968, result of regulation.

REMARKS.--Records good except for periods of no gage-height record, which are poor.

COOPERATION.--Gage height record for year 1965 furnished by P.R. Water Resources Authority.

REVISIONS.--WRD Puerto Rico 1968: 1965 (P).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.8	5.0	5.0	3.3	5.4	44	5.0	3.8	4.2	38		
2	5.6	5.4	5.7	3.2	4.0	68	4.8	3.7	4.2	14		
3	5.6	5.2	5.6	3.1	4.0	21	4.7	3.6	4.2	8.1		
4	5.6	5.0	4.6	3.1	4.8	12	17	3.6	3.8	8.3		
5	5.4	5.0	4.2	3.0	3.8	10	10	3.6	5.2	27		
6	5.4	5.2	4.2	3.1	3.8	10	6.0	3.5	7.4	187		
7	5.4	5.2	4.2	3.1	160	8.0	5.4	3.5	4.5	150		
8	5.4	5.1	4.2	3.0	464	7.0	5.0	3.5	3.8	129		
9	5.4	5.2	4.1	3.6	645	5.8	8.5	3.6	3.7			
10	5.4	5.1	4.1	3.8	39	5.6	5.2	3.5	3.7			
11	9.0	5.4	4.6	3.2	23	5.6	4.8	3.3	37			
12	8.2	5.1	4.0	3.2	19	5.4	4.7	3.3	10			
13	10	5.0	3.8	3.2	17	5.2	4.6	6.1	7.6			
14	8.5	5.0	3.7	3.2	15	5.0	4.5	3.6	5.2			
15	7.6	5.0	3.6	3.2	13	12	4.5	3.5	4.5			
16	7.2	5.0	3.5	4.4	11	42	50	4.5	4.4			
17	6.8	4.8	3.5	3.7	9.6	30	27	4.5	5.2			
18	6.6	4.5	3.5	3.3	8.6	20	15	3.8	4.2			
19	6.4	4.4	4.0	3.2	8.0	13	9.0	3.2	4.0			
20	6.0	4.2	4.0	3.3	7.2	9.0	5.0	3.2	24			
21	5.9	4.2	3.6	3.6	6.7	9.0	4.5	3.6	7.7			
22	5.8	4.2	3.5	3.5	6.4	8.0	4.6	13	5.7			
23	5.8	4.2	3.3	3.5	6.1	7.0	4.5	5.3	14			
24	5.6	4.6	3.5	3.5	5.8	6.0	4.3	3.6	6.8			
25	5.6	4.6	3.3	3.3	5.5	7.5	4.0	3.3	21			
26	5.6	4.6	3.5	3.1	5.3	7.0	4.5	3.3	7.7			
27	5.4	4.6	3.5	3.1	5.1	6.2	4.2	4.3	5.7			
28	5.4	5.0	3.8	3.0	5.0	5.6	4.5	34	4.6			
29	5.4	------	3.5	3.3	31	5.0	4.2	6.8	8.7			
30	5.2	------	3.5	19	18	5.0	4.1	4.5	71			
31	5.2	------	3.3	------	21	------	3.9	4.5	------		------	
TOTAL	192.2	135.8	122.4	115.1	1,581.1	404.9	248.0	161.1	303.7			
MEAN	6.20	4.85	3.95	3.84	51.0	13.5	8.00	5.20	10.1			
MAX	10	5.4	5.7	19	645	68	50	34	71			
MIN	5.2	4.2	3.3	3.0	3.8	5.0	3.9	3.2	3.7			
CFSM	1.69	1.32	1.07	1.04	13.9	3.67	2.17	1.41	2.75			
IN.	1.94	1.37	1.24	1.16	15.99	4.09	2.51	1.63	3.07			
AC-FT	381	269	243	228	3,140	803	492	320	602			

WTR YR 1970 TOTAL 5,366.5 MEAN 14.7 MAX 645 MIN 3.0 CFSM 4.00 IN 54.26 AC-FT 10,640

PEAK DISCHARGE (BASE, 900 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-07	1500	10.60	5,620	05-09	--	Unknown	Unknown	09-30	1730	5.53	1,180	10-09	--	Unknown	Unknown
05-08	1500	12.20	7,780												

NOTE.--No gage-height record Jan. 1 to Feb. 5, May 7 to Aug. 2; gage destroyed Oct. 9.

RIO GRANDE DE MANATI BASIN

50034000 Río Bauta near Orocovis, P.R.

LOCATION.--Lat 18° 14' 10", long 66° 27' 18", on left bank, at bridge on Highway 157 (km. 12.1), 4.2 miles west of Orocovis.

DRAINAGE AREA.--16.7 sq mi.

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 805 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 17,800 cfs Oct. 9 (gage height, 21.9 ft, from floodmark), from rating curve extended above 100 cfs on basis of step-backwater analysis by U.S. Bureau of Reclamation; minimum daily, 6.5 cfs Apr. 7, 8.
Period of record: Maximum discharge, 17,800 cfs Oct. 9, 1970 (gage height, 21.9 ft, from floodmark), from rating curve extended above 100 cfs on basis of step-backwater analysis by U.S. Bureau of Reclamation; minimum daily, 6.5 cfs Apr. 7, 8, 1970.

REMARKS.--Records fair below 100 cfs and poor above.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	13	12	12	7.1	14	153	16	11	27	292	193	90
2	13	13	12	7.1	9.2	79	16	11	24	235	296	80
3	13	13	13	6.9	9.0	44	16	10	21	150	206	74
4	13	12	11	6.9	22	34	15	11	19	114	183	70
5	13	12	10	6.9	11	30	16	12	56	319	162	66
6	13	13	10	6.7	9.8	28	14	12	45	1,290	317	63
7	13	13	10	6.5	83	26	13	12	28	861	243	60
8	13	12	10	6.5	588	24	13	12	40	1,060	236	125
9	13	12	10	7.1	1,090	22	18	18	102	3,870	514	308
10	13	12	9.8	8.8	140	21	14	17	65	300	379	407
11	22	15	9.5	8.3	58	21	14	15	58	250	186	357
12	20	14	9.2	7.5	42	22	13	13	65	210	344	500
13	23	12	9.2	7.3	41	20	13	14	186	190	312	200
14	20	12	9.0	7.7	36	21	12	13	98	180	166	120
15	18	12	8.8	7.9	29	25	12	12	67	170	132	95
16	17	12	8.5	8.8	26	115	37	12	61	160	114	78
17	16	11	8.3	10	23	89	28	12	67	150	104	70
18	16	11	8.3	9.2	20	70	18	11	62	147	99	62
19	15	10	8.5	8.3	18	51	14	11	50	143	109	57
20	14	10	9.2	7.9	18	40	14	11	49	140	105	52
21	14	10	8.8	7.9	19	32	14	11	48	180	140	48
22	14	10	8.3	7.9	16	28	16	34	42	150	160	45
23	14	10	8.1	7.9	16	23	14	26	52	130	200	43
24	14	11	7.9	7.9	16	21	13	16	56	120	130	42
25	13	12	7.9	7.7	16	21	12	13	125	200	110	39
26	13	11	7.7	7.7	15	19	16	12	79	170	400	38
27	13	11	7.5	7.5	16	18	13	14	56	142	250	36
28	13	12	8.1	7.3	17	17	13	228	49	109	150	36
29	13	------	7.7	18	16	17	12	64	132	152	120	34
30	12	------	7.5	17	54	16	11	39	307	283	100	31
31	12	------	7.3	------	117	------	11	30	------	280	------	29
TOTAL	456	330	283.1	250.2	2,605.0	1,147	471	737	2,136	12,147	6,160	3,355
MEAN	14.7	11.8	9.13	8.34	84.0	38.2	15.2	23.8	71.2	392	205	108
MAX	23	15	13	18	1,090	153	37	228	307	3,870	514	500
MIN	12	10	7.3	6.5	9.0	16	11	10	19	109	99	29
CFSM	.89	.71	.55	.50	5.06	2.30	.92	1.43	4.29	23.6	12.4	6.51
IN.	1.02	.74	.63	.56	5.84	2.57	1.06	1.65	4.79	27.22	13.81	7.52
AC-FT	904	655	562	496	5,170	2,280	934	1,460	4,240	24,090	12,220	6,650

CAL YR 1970 TOTAL 30,077.3 MEAN 82.4 MAX 3,870 MIN 6.5 CFSM 4.96 IN 67.41 AC-FT 59,660

RIO GRANDE DE MANATI BASIN

50035000 Río Grande de Manatí at Ciales, P.R.

LOCATION.--Lat 18° 19' 26", long 66° 27' 36", on left bank, 1,600 ft upstream from crossing of power line, 0.8 mile downstream from Quebrada Saliente, 1.1 miles upstream from Quebrada Cojo Vales, and 1.2 miles southeast of Ciales.

DRAINAGE AREA.--128 sq mi (excludes 6 sq mi upstream from Lagos El Guineo and de Matrullas).

PERIOD OF RECORD.--August 1946 to October 1953, February to March 1954, April 1956 to September 1960 (gage height records in office files of P.R. Water Resources Authority), February 1959 to September 1960 (monthly measurements only), October 1960 to current year.

GAGE.--Water-stage recorder. Prior to April 1962, staff gage, read twice daily, at site 100 ft upstream at same datum. Altitude of gage is 150 ft (from topographic map).

AVERAGE DISCHARGE.--10 years (1961-70), 288 cfs (30.55 inches per year, 208,700 acre-ft per year); median of yearly mean discharges, 260 cfs (27.58 inches per year, 188,400 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 125,000 cfs Oct. 9 (gage height, 24.0 ft, from floodmark), from rating curve extended above 3,000 cfs on basis of slope-area measurements of peak flow at gage heights 13.2, 15.0, 19.0, and 24.0 ft; minimum, 57 cfs Apr. 28.

Period of record: Maximum discharge, 125,000 cfs Oct. 9, 1970 (gage height, 24.0 ft, from floodmark), from rating curve extended as explained above; minimum discharge, 28 cfs June 27, 1968.

Approximate gage heights of major floods, pointed out by local residents, are as follows: August 1899, 50 ft, September 1928, 36 ft, and September 1932, 34 ft.

REMARKS.--Records good except for period of no gage-height record, which are poor. All flow into Lagos El Guineo and de Matrullas (usable storage, 4,760 acre-ft) diverted to Río Jacaguas basin, except spillage during extremely large floods.

COOPERATION.--Prior to February 1959, records furnished by P.R. Water Resources Authority.

REVISIONS.--WRD Puerto Rico 1968: 1960 (P), 1963, 65 (M), 1966 (P).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	141	120	150	72	260	4,430	135	102	178	1,260	560	430
2	138	151	122	70	108	1,300	132	123	153	1,090	580	400
3	138	128	124	68	86	454	123	102	145	672	720	380
4	135	120	102	66	140	300	126	100	123	364	400	360
5	132	124	93	64	146	238	156	108	437	1,110	500	370
6	132	120	93	62	404	234	138	95	410	8,650	900	380
7	129	124	93	60	2,330	197	123	100	370	7,260	1,200	330
8	126	114	93	70	6,400	171	115	102	256	10,000	1,000	900
9	126	115	92	80	7,750	154	174	150	483	24,400	4,000	1,500
10	129	120	91	76	2,370	147	126	168	318	4,310	3,500	5,000
11	648	107	92	70	972	154	120	138	425	2,320	1,400	2,200
12	672	220	93	66	696	178	112	105	443	1,500	1,200	4,000
13	315	114	87	64	760	147	108	115	594	1,100	1,500	1,500
14	881	104	84	64	474	144	105	158	367	900	900	1,000
15	507	100	85	70	305	182	102	123	210	760	700	800
16	375	100	83	100	238	612	619	120	193	660	600	660
17	248	98	81	90	205	597	480	115	233	580	520	540
18	201	96	82	80	182	558	221	97	255	520	460	480
19	178	93	91	70	168	353	154	88	190	460	420	450
20	168	91	116	60	160	275	158	84	236	430	560	420
21	158	92	92	60	157	230	135	86	260	600	700	380
22	150	93	84	64	147	234	132	237	166	460	800	350
23	149	99	81	68	138	174	126	354	194	410	1,100	330
24	146	108	81	64	135	168	123	137	261	390	540	310
25	138	118	78	60	132	182	120	106	590	820	500	300
26	132	96	77	60	126	182	129	93	413	660	900	280
27	130	93	74	59	126	150	120	112	237	500	2,100	260
28	129	108	80	58	214	138	132	3,120	194	340	900	270
29	132	------	84	74	213	138	118	412	305	360	540	280
30	126	------	80	433	1,410	135	110	223	1,040	1,000	480	260
31	122	------	76	------	1,610	------	102	212	------	1,200	------	240
TOTAL	7,031	3,166	2,834	2,422	28,562	12,556	4,874	7,385	9,679	75,086	30,180	25,360
MEAN	227	113	91.4	80.7	921	419	157	238	323	2,422	1,006	818
MAX	881	220	150	433	7,750	4,430	619	3,120	1,040	24,400	4,000	5,000
MIN	122	91	74	58	86	135	102	84	123	340	400	240
CFSM	1.77	.88	.71	.63	7.20	3.27	1.23	1.86	2.52	18.9	7.86	6.39
IN.	2.04	.92	.82	.70	8.30	3.65	1.42	2.15	2.81	21.82	8.77	7.37
AC-FT	13,950	6,280	5,620	4,800	56,650	24,900	9,670	14,650	19,200	148,900	59,860	50,300

CAL YR 1970 TOTAL 209,135 MEAN 573 MAX 24,400 MIN 58 CFSM 4.48 IN 60.78 AC-FT 414,800
WTR YR 1970 TOTAL 127,258 MEAN 349 MAX 10,800 MIN 58 CFSM 2.73 IN 36.98 AC-FT 252,400

PEAK DISCHARGE (BASE, 7,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-08	1730	15.45	51,200	06-01	1530	10.06	21,800	10-06	0830	9.36	18,900	12-10	--	13.2	37,000
05-09	1700	14.72	46,300	08-28	0515	7.48	12,000	10-09	--	24.0	125,000				

NOTE.--No gage-height record Oct. 9 to Dec. 31.

RIO GRANDE DE MANATI BASIN

50035950 Río Cialitos at Highway 649 at Ciales, P.R.

LOCATION.--Lat 18° 20' 18", long 66° 28' 28", on left bank, 100 ft upstream from bridge on Highway 649, 0.4 mile west of Ciales, and 0.7 mile upstream from mouth.

DRAINAGE AREA.--About 17 sq mi--includes some karst area.

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow and occasional other measurements only), July 1969 to current year (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Altitude of gage is 130 ft (from topographic map). Prior to July 1969, nonrecording gage at bridge 2,600 ft downstream at different datum.

EXTREMES.--Current year: Maximum discharge, 9,450 cfs May 8 (gage height, 14.0 ft, from floodmark), from rating curve extended above 100 cfs on basis of slope-area measurement and step-backwater analysis; minimum observed, 9.5 cfs Apr. 28 (from discharge measurement).
Period of record: Maximum discharge, 9,450 cfs May 8, 1970 (gage height, 14.0 ft, from floodmark), from rating curve extended above 100 cfs on basis of slope-area measurement and step-backwater analysis; minimum observed, 9.5 cfs Apr. 28, 1970 (from discharge measurement).

REMARKS.--Records fair except during period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	16	20	20	13	20	495	33	25	48	120	56	65
2	16	19	18	12	16	151	33	23	38	86	114	55
3	16	16	16	12	15	82	33	21	35	76	68	50
4	16	16	15	12	25	68	35	21	31	59	63	45
5	16	16	15	11	18	59	33	22	171	94	49	43
6	16	16	15	11	70	56	32	21	48	475	45	40
7	16	16	15	11	180	50	31	21	50	495	100	50
8	16	16	16	11	1,500	46	30	33	48	1,280	90	70
9	16	17	16	14	500	44	30	42	45	856	300	120
10	16	19	15	20	200	48	30	48	40	295	250	350
11	145	19	15	16	150	57	30	37	38	200	150	150
12	78	16	16	14	120	54	30	23	37	150	160	250
13	48	16	15	12	100	44	30	25	38	100	150	120
14	137	15	15	12	68	59	29	29	36	70	100	80
15	63	14	14	11	50	56	29	22	36	50	80	70
16	40	14	14	20	38	49	72	23	46	45	65	65
17	29	14	13	22	35	61	56	23	50	42	58	58
18	23	14	12	15	29	66	33	21	44	41	53	54
19	22	14	13	13	27	52	31	20	35	40	50	50
20	21	14	18	12	25	48	32	19	38	40	58	47
21	20	14	14	12	25	48	37	18	37	41	65	45
22	19	15	14	16	24	44	63	37	32	42	80	43
23	19	16	13	14	23	42	30	31	40	48	100	41
24	18	20	13	12	23	40	24	22	43	97	55	40
25	17	22	12	12	22	49	23	20	72	74	53	37
26	16	14	12	11	21	42	23	18	49	56	75	36
27	16	13	11	11	105	37	22	56	38	44	170	35
28	16	20	15	10	110	36	23	210	35	40	110	33
29	16	------	14	12	130	36	22	56	38	88	85	32
30	16	------	14	20	351	36	22	40	52	134	70	31
31	14	------	13	------	207	------	21	52	------	80	------	30
TOTAL	953	455	451	404	4,227	2,055	1,002	1,079	1,388	5,358	2,922	2,235
MEAN	30.7	16.3	14.5	13.5	136	68.5	32.3	34.8	46.3	173	97.4	72.1
MAX	145	22	20	22	1,500	495	72	210	171	1,280	300	350
MIN	14	13	11	10	15	36	21	18	31	40	45	30
AC-FT	1,890	902	895	801	8,380	4,080	1,990	2,140	2,750	10,630	5,800	4,430

CAL YR 1970 TOTAL 22,529 MEAN 61.7 MAX 1,500 MIN 10 AC-FT 44,690
WTR YR 1970 TOTAL 16,830 MEAN 46.1 MAX 1,500 MIN 10 AC-FT 33,380

NOTE.--No gage-height record Mar. 12 to Apr. 28, Nov. 6 to Dec. 31.

RIO GRANDE DE MANATI BASIN

50038100 Río Grande de Manatí at Highway 2 near Manatí, P.R.

LOCATION.--Lat 18° 25' 52", long 66° 31' 37", at bridge on Highway 2, and 2.3 miles west of Manatí.

DRAINAGE.--Indeterminate.

PERIOD OF RECORD.--1963-68 (annual maximum discharge only), January to December, current year.

GAGE.--Water-stage recorder. Altitude of gage is 14 ft (from topographic map). Prior to 1968, crest-stage gage at datum 3.57 ft lower.

EXTREMES.--Maximum discharge during period February to December, current year, 119,000 cfs Oct. 9 (gage height, 33.30 ft), from rating curve extended above 15,000 cfs on basis of slope-area measurements of peak flow; minimum daily, 98 cfs Apr. 8.
Period of record: Maximum discharge, 119,000 cfs Oct. 9, 1970 (gage height, 33.30 ft), from rating curve extended above 15,000 cfs on basis of slope-area measurements of peak flow; minimum daily, 98 cfs Apr. 8, 1970.

REMARKS.--Records fair. All flow into Lagos El Guineo and de Matrullas (usable storage, 4,760 acre-ft) diverted to Río Jacaguas basin, except spillage during extremely large floods.

ANNUAL MAXIMUM DISCHARGE

DATE	G.H.	DISCHARGE	DATE	G.H.	DISCHARGE	DATE	G.H.	DISCHARGE	DATE	G.H.	DISCHARGE	DATE	G.H.	DISCHARGE
05-22-63	27.8	11,400	1964	b	--	12-11-65	+	39,600	04-20-66	+	35,400	1967-68	b	--

[b]Stage did not reach base of gage. Gage heights adjusted to present datum.
[+]Stage not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	240	190	257	118	600	3,230	234	168	388	1,590	978	705
2	240	232	244	118	180	3,200	220	201	317	1,360	996	672
3	235	217	227	112	141	1,130	206	167	292	1,200	1,230	632
4	235	192	198	108	197	745	236	164	239	581	715	600
5	230	188	181	105	290	584	436	174	433	905	859	608
6	225	182	162	103	513	527	266	165	894	7,270	1,450	622
7	220	181	140	99	1,670	461	224	157	713	6,920	1,950	545
8	220	177	135	98	6,900	398	206	170	526	9,720	1,800	1,360
9	220	171	132	102	4,530	347	265	226	561	32,300	8,260	2,490
10	225	179	132	139	2,810	321	222	260	671	5,820	7,700	10,100
11	800	165	132	129	1,850	334	206	297	362	2,920	2,620	4,260
12	1,000	277	140	116	1,300	363	189	186	819	1,960	2,100	7,880
13	600	190	136	112	1,000	312	180	177	650	1,520	2,350	3,330
14	1,200	170	145	104	740	295	176	270	699	1,300	1,500	1,740
15	760	166	148	106	600	354	171	182	367	1,150	1,250	1,280
16	560	166	142	109	500	598	242	181	347	1,020	1,030	1,040
17	400	161	125	185	430	837	1,060	222	342	929	877	890
18	330	158	122	135	386	904	405	166	439	828	772	792
19	300	153	128	121	357	486	263	151	333	758	738	762
20	270	152	157	112	328	424	289	146	274	740	900	690
21	250	150	141	109	312	335	226	147	461	978	1,180	628
22	230	154	134	119	292	340	295	182	289	798	1,290	592
23	213	160	129	124	266	318	303	591	283	688	1,690	551
24	202	170	125	118	261	288	216	240	405	708	939	531
25	195	213	118	115	237	295	200	179	577	1,260	930	497
26	190	174	121	119	226	351	206	160	719	1,070	1,570	472
27	185	166	132	111	217	279	195	168	391	898	3,340	450
28	190	166	133	107	582	248	232	2,890	313	632	1,310	458
29	210	------	142	112	662	233	200	854	356	672	960	458
30	200	------	132	264	1,640	225	180	455	779	1,520	795	410
31	195	------	118	------	1,960	------	171	382	------	1,680	------	394
TOTAL	10,770	5,020	4,608	3,629	31,977	18,762	8,120	10,078	14,239	91,695	54,079	46,439
MEAN	347	179	149	121	1,032	625	262	325	475	2,958	1,803	1,498
MAX	1,200	277	257	264	6,900	3,230	1,060	2,890	894	32,300	8,260	10,100
MIN	185	150	118	98	141	225	171	146	239	581	715	394
AC-FT	21,360	9,960	9,140	7,200	63,430	37,210	16,110	19,990	28,240	181,900	107,300	92,110

CAL YR 1970 TOTAL 299,416 MEAN 820 MAX 32,300 MIN 98 AC-FT 593,900

RIO CIBUCO BASIN

50038320 Río Cibuco below Corozal, P.R.

LOCATION.--Lat 18° 21' 13", long 66° 20' 07", on right bank, 150 ft downstream from Río Corozal, and 1.4 miles northwest of Corozal.

DRAINAGE AREA.--15.1 sq mi.

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 195 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 12,200 cfs May 8 (gage height, 18.9 ft, from floodmark), from rating curve extended on basis of slope-area measurements of peak flow; minimum daily, 5.5 cfs Apr. 12.
Period of record: Maximum discharge, 12,200 cfs May 8, 1970 (gage height, 18.9 ft, from floodmark), from rating curve extended on basis of slope-area measurements of peak flow; minimum daily, 5.5 cfs Apr. 12, 1970.

REMARKS.--Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	21	15	12	7.0	77	230	24	16	33	45	19	52
2	18	15	13	7.0	17	73	22	20	29	39	16	48
3	20	14	14	7.2	14	38	23	23	25	45	17	46
4	16	14	11	6.5	25	31	123	20	24	58	15	44
5	18	14	11	6.7	15	28	42	16	22	136	14	42
6	19	15	10	6.0	34	29	27	21	20	715	122	40
7	15	15	10	5.8	364	27	19	24	19	604	49	39
8	14	14	10	5.8	757	24	19	19	18	262	181	338
9	25	16	9.8	7.7	527	23	18	17	19	684	2,130	971
10	42	16	9.6	8.4	257	23	19	16	19	108	290	1,060
11	376	17	9.4	5.7	165	24	18	15	21	68	148	717
12	111	16	9.6	5.5	100	26	18	15	77	45	110	500
13	39	14	9.3	5.7	72	23	18	17	27	35	92	167
14	36	13	9.2	6.0	60	32	17	15	21	31	79	106
15	39	14	9.0	6.8	50	28	17	15	27	29	74	93
16	29	13	9.2	7.2	44	108	26	51	23	27	69	90
17	24	13	9.0	8.7	40	40	18	25	21	26	66	87
18	21	13	9.2	6.2	36	34	17	16	20	25	62	82
19	20	12	9.6	6.4	34	31	17	15	19	24	85	93
20	19	12	12	6.7	33	27	18	15	19	24	66	68
21	18	13	9.0	7.4	33	49	17	15	20	41	175	78
22	18	13	8.2	9.2	31	33	125	21	19	20	84	58
23	19	14	8.2	7.0	30	27	24	17	28	18	65	55
24	19	16	8.2	6.7	30	25	18	15	23	17	55	52
25	17	14	8.0	7.9	29	25	17	14	20	17	61	50
26	17	12	7.6	6.4	28	25	16	15	19	16	239	48
27	16	11	7.2	6.2	28	24	25	43	19	16	98	46
28	16	12	8.4	6.7	45	23	40	642	18	15	68	44
29	17	------	7.0	8.0	104	23	22	33	25	53	60	42
30	15	------	6.7	108	78	26	17	94	218	217	54	41
31	15	------	6.7	------	87	------	22	66	------	37	------	40
TOTAL	1,109	390	291.1	306.5	3,244	1,179	863	1,366	912	3,497	4,663	5,237
MEAN	35.8	13.9	9.39	10.2	105	39.3	27.8	44.1	30.4	113	155	169
MAX	376	17	14	108	757	230	125	642	218	715	2,130	1,060
MIN	14	11	6.7	5.5	14	23	16	14	18	15	14	39
CFSM	2.37	.92	.62	.68	6.95	2.60	1.84	2.92	2.01	7.48	10.3	11.2
IN.	2.73	.96	.72	.76	7.99	2.90	2.13	3.37	2.25	8.62	11.49	12.90
AC-FT	2,200	774	577	608	6,430	2,340	1,710	2,710	1,810	6,940	9,250	10,390

CAL YR 1970 TOTAL 23,057.6 MEAN 63.2 MAX 2,130 MIN 5.5 CFSM 4.19 IN 56.81 AC-FT 45,730
WTR YR 1970 TOTAL 13,453.6 MEAN 36.9 MAX 1,180 MIN 5.5 CFSM 2.44 IN 33.15 AC-FT 26,690

RIO CIBUCO BASIN

50038360 Río Mavilla near Corozal, P.R.

LOCATION.--Lat 18° 21' 14", long 66° 17' 51", on right bank, about 3,000 ft downstream from bridge on Highway 159, and about 1.7 miles northeast of Corozal.

DRAINAGE AREA.--9.51 sq mi.

PERIOD OF RECORD.--April 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 160 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 9,710 cfs May 8 (gage height, 16.63 ft), from rating curve extended above 100 cfs on basis of slope-area measurements of peak flow; minimum daily, 9.2 cfs Apr. 6-9, 14-20.

Period of record: Maximum discharge, 10,400 cfs Nov. 9, 1969 (gage height, 17.1 ft), from rating curve extended above 100 cfs on basis of slope-area measurements of peak flow; minimum daily, 9.2 cfs Apr. 6-9, 14-20, 1970.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	20	18	18	11	37	78	27	24	41	29	26	55
2	20	21	16	10	18	54	25	23	33	32	23	52
3	20	18	16	10	17	40	30	41	29	33	22	50
4	19	18	14	10	24	30	228	26	27	40	21	48
5	19	17	13	10	14	30	69	24	26	98	20	47
6	18	17	13	9.6	13	32	41	23	29	566	36	46
7	17	17	13	9.6	140	29	38	27	27	468	26	45
8	17	16	13	9.6	788	26	37	30	25	340	81	44
9	17	17	13	13	326	25	37	27	24	1,140	1,460	359
10	18	17	13	14	238	25	37	24	24	228	282	1,460
11	142	16	13	11	192	26	36	21	23	109	152	555
12	78	16	13	9.6	201	35	36	21	28	89	100	580
13	34	16	12	9.6	203	25	35	29	24	40	93	300
14	31	16	12	9.6	101	25	35	24	22	35	58	160
15	36	16	12	9.6	42	30	35	21	23	32	53	110
16	29	16	12	9.6	37	136	34	41	25	30	53	80
17	25	16	11	9.4	34	51	29	28	22	28	52	65
18	23	16	13	9.4	32	41	27	22	21	26	49	75
19	22	15	14	9.4	31	43	26	21	21	25	68	90
20	22	15	15	9.4	30	34	29	20	20	45	60	70
21	21	15	12	11	29	49	26	21	23	45	103	80
22	21	15	14	13	28	38	168	29	21	26	71	60
23	21	16	11	11	27	32	53	25	30	23	57	58
24	20	17	10	11	26	30	41	22	26	22	53	55
25	20	16	9.8	11	25	32	31	20	26	21	60	53
26	20	15	9.8	10	24	32	28	20	22	61	138	51
27	19	14	9.6	10	24	31	30	57	21	50	187	49
28	19	21	14	10	30	27	49	571	20	27	74	47
29	20	------	11	12	57	27	28	89	22	24	65	46
30	19	------	10	84	37	30	26	69	92	133	60	45
31	18	------	10	------	44	------	24	53	------	42	------	44
TOTAL	845	463	390.2	386.4	2,869	1,143	1,395	1,493	817	3,907	3,603	4,879
MEAN	27.3	16.5	12.6	12.9	92.5	38.1	45.0	48.2	27.2	126	120	157
MAX	142	21	18	84	788	136	228	571	92	1,140	1,460	1,460
MIN	17	14	9.6	9.4	13	25	24	20	20	21	20	44
CFSM	2.87	1.74	1.33	1.36	9.73	4.01	4.73	5.07	2.86	13.3	12.6	16.5
IN.	3.31	1.81	1.53	1.51	11.22	4.47	5.46	5.84	3.20	15.28	14.10	19.09
AC-FT	1,680	918	774	766	5,690	2,270	2,770	2,960	1,620	7,750	7,150	9,680

CAL YR 1970 TOTAL 22,190.6 MEAN 60.8 MAX 1,460 MIN 9.4 CFSM 6.39 IN 86.81 AC-FT 44,020
WTR YR 1970 TOTAL 14,069.6 MEAN 38.5 MAX 1,270 MIN 9.4 CFSM 4.05 IN 55.04 AC-FT 27,910

RIO CIBUCO BASIN

50038600 Río Unibón near Morovis, P.R.

LOCATION.--Lat 18° 20' 38", long 66° 22' 35", on right bank, 80 ft downstream from bridge on Highway 159, and 2.3 miles southwest of Morovis.

DRAINAGE AREA.--5.29 sq mi.

PERIOD OF RECORD.--April 1969 to November 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 443 ft (from topographic map).

EXTREMES.--Maximum discharge during period January to November, current year, 2,760 cfs May 8 (gage height, 13.51 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurement of peak flow; minimum discharge, 1.5 cfs Apr. 7.

Period of record: Maximum discharge, 2,760 cfs May 8, 1970 (gage height, 13.51 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurement of peak flow; minimum discharge, 1.5 cfs Apr. 7, 1970.

REMARKS.--Records good except those for period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.4	4.7	3.2	2.1	17	84	7.6	5.0	20	6.6	15	
2	5.4	4.8	3.9	2.1	5.6	25	6.8	4.6	11	7.3	14	
3	5.2	4.7	4.2	2.0	12	12	7.2	5.0	8.6	6.3	13	
4	5.1	4.8	2.9	2.0	38	9.5	44	4.7	7.4	15	12	
5	5.0	4.8	2.7	2.0	58	8.8	14	4.6	6.8	45	13	
6	4.8	5.0	2.6	1.9	115	9.2	8.4	4.4	7.6	213	45	
7	4.6	4.8	2.5	1.8	78	8.6	5.8	7.3	17	156	31	
8	4.5	4.6	2.7	1.9	250	7.5	5.6	5.7	8.6	81	78	
9	4.6	4.9	2.6	4.9	150	7.2	5.8	5.0	6.8	239	200	
10	4.8	4.8	2.6	3.8	94	7.2	6.0	4.7	6.3	45		
11	66	5.1	2.8	2.8	60	7.5	5.6	4.5	6.0	55		
12	27	5.5	3.0	2.4	35	8.2	5.4	4.7	43	29		
13	14	5.0	2.6	2.1	24	7.2	5.2	5.5	14	22		
14	21	3.9	2.5	1.9	20	10	5.2	4.7	7.9	18		
15	16	4.1	2.4	1.9	16	8.8	5.8	4.8	15	16		
16	10	3.9	2.4	2.4	14	37	7.3	22	9.5	15		
17	8.2	3.9	2.4	2.2	13	13	6.0	10	6.4	14		
18	7.3	4.0	2.4	2.0	12	11	5.1	5.0	6.2	13		
19	6.3	3.8	3.1	1.9	11	9.6	5.1	4.2	5.8	13		
20	5.8	3.6	3.6	2.4	10	8.5	5.2	4.1	5.8	15		
21	5.7	3.7	2.5	3.6	10	16	5.4	4.5	6.2	19		
22	5.5	3.5	2.4	4.6	9.6	11	13	7.8	5.8	13		
23	5.4	3.4	2.4	3.0	9.4	8.6	6.6	5.8	8.9	13		
24	5.6	4.7	2.3	3.2	9.2	7.8	5.4	4.2	7.2	12		
25	5.2	3.7	2.3	4.1	9.0	7.8	6.5	4.0	6.2	12		
26	5.0	3.1	2.2	2.8	8.8	7.8	7.4	3.9	5.8	11		
27	5.0	2.9	2.2	2.4	8.8	7.6	6.2	19	5.8	11		
28	4.8	3.0	2.8	2.2	15	7.2	12	183	6.5	12		
29	5.0	------	2.3	2.1	37	7.2	6.0	13	7.8	40		
30	4.8	------	2.1	23	26	8.2	5.0	18	80	74		
31	4.7	------	2.1	------	30	------	4.4	54	------	19	------	
TOTAL	287.7	118.7	82.7	97.5	1,205.4	389.0	245.0	437.7	359.9	1,260.2		
MEAN	9.28	4.24	2.67	3.25	38.9	13.0	7.90	14.1	12.0	40.7		
MAX	66	5.5	4.2	23	250	84	44	183	80	239		
MIN	4.5	2.9	2.1	1.8	5.6	7.2	4.4	3.9	5.8	6.3		
CFSM	1.75	.80	.50	.61	7.35	2.46	1.49	2.67	2.27	7.70		
IN.	2.02	.83	.58	.69	8.48	2.74	1.72	3.08	2.53	8.86		
AC-FT	571	235	164	193	2,390	772	486	868	714	2,500		

WTR YR 1970 TOTAL 4,546.6 MEAN 12.5 MAX 250 MIN 1.8 CFSM 2.36 IN 31.98 AC-FT 9,020

NOTE.--No gage-height record May 9 to July 15.

RIO CIBUCO BASIN

50039600 Río Cibuco at Central San Vicente, P.R.

LOCATION.--Lat 18° 27' 42", long 66° 21' 56", on right bank at former Central diversion structure, 700 ft upstream from bridge on Highway 688, 1.8 miles northeast of Vega Baja, and 2.3 miles upstream from mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--March 1969 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 16 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 7,590 cfs Nov. 10 (gage height, 12.37 ft), from rating curve extended above 3,600 cfs; minimum, 25 cfs Apr. 29.

Period of record: Maximum discharge, 7,590 cfs Nov. 10, 1970 (gage height, 12.37 ft), from rating curve extended above 3,600 cfs; maximum gage height about 16 ft Nov. 9, 1969, from floodmark (discharge not determined); minimum, 25 cfs Apr. 29, 1970.

REMARKS.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	71	67	54	33	277	575	67	78	90	468	120	145
2	69	71	48	33	199	700	66	72	66	155	72	140
3	69	65	48	33	78	246	175	88	58	140	68	130
4	67	63	48	33	206	150	436	117	54	130	66	130
5	65	63	46	33	181	100	274	84	52	520	150	125
6	65	59	46	32	319	86	140	70	52	1,500	560	120
7	65	59	44	32	675	78	85	75	140	1,200	570	120
8	63	59	44	32	1,750	72	100	104	244	1,000	935	540
9	63	57	43	33	1,300	68	90	80	110	1,600	3,300	1,000
10	63	59	48	55	1,500	64	78	84	64	250	5,400	2,500
11	835	57	43	41	1,900	62	72	73	56	150	1,900	2,000
12	825	57	48	36	800	61	68	65	138	130	450	2,200
13	436	55	44	33	350	60	64	69	209	110	300	800
14	524	54	43	33	190	60	62	82	122	98	210	350
15	368	54	41	33	140	181	60	65	109	92	180	200
16	274	54	41	32	110	368	203	80	117	90	170	160
17	193	52	41	35	100	228	132	178	84	86	155	150
18	155	52	41	33	90	150	82	80	73	84	150	170
19	127	52	41	32	84	105	71	65	71	82	160	190
20	119	50	55	30	80	182	73	63	67	80	170	180
21	109	50	48	32	76	203	80	61	65	1,060	400	150
22	100	50	43	41	74	155	249	80	71	382	250	130
23	96	50	40	41	72	110	330	112	65	90	160	110
24	98	50	40	35	72	96	122	73	109	80	140	100
25	88	57	38	35	70	87	76	63	71	76	500	94
26	84	50	38	35	70	82	70	63	78	74	450	90
27	78	48	36	29	69	77	68	135	69	72	540	88
28	78	48	40	29	68	73	476	2,190	63	70	210	86
29	72	------	40	26	190	70	181	284	80	70	180	84
30	70	------	38	104	309	69	127	270	256	250	155	82
31	69	------	36	------	288	------	90	145	------	500	------	80
TOTAL	5,458	1,562	1,344	1,094	11,687	4,618	4,267	5,148	2,903	10,689	18,071	12,444
MEAN	176	55.8	43.4	36.5	377	154	138	166	96.8	345	602	401
MAX	835	71	55	104	1,900	700	476	2,190	256	1,600	5,400	2,500
MIN	63	48	36	26	68	60	60	61	52	70	66	80
AC-FT	10,830	3,100	2,670	2,170	23,180	9,160	8,460	10,210	5,760	21,200	35,840	24,680

CAL YR 1970 TOTAL 79,285 MEAN 217 MAX 5,400 MIN 26 AC-FT 157,300
WTR YR 1970 TOTAL 53,666 MEAN 147 MAX 3,000 MIN 26 AC-FT 106,400

RIO DE LA PLATA BASIN

50043000 Río de la Plata at Proyecto La Plata, P.R.

LOCATION.--Lat 18° 09' 37", long 66° 13' 44", on left bank, 55 ft upstream from bridge on Highway 173, 100 ft upstream from Quebrada Honda, 0.4 mile northeast of Proyecto La Plata, and 2.6 miles upstream from Río Usabón.

DRAINAGE AREA.--54.8 sq mi (excludes 8.2 sq mi above Carite Reservoir).

PERIOD OF RECORD.--1958 (occasional measurements only), February 1959 to March 1960 (monthly measurements only), April 1960 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 850 ft (from topographic map). Prior to Mar. 29, 1961, wire-weight gage read twice daily at same site and datum.

AVERAGE DISCHARGE.--10 years (1961-70), 140 cfs (34.69 inches per year, 101,400 acre-ft per year); median of yearly mean discharges, 104 cfs (25.77 inches per year, 75,350 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 48,000 cfs Oct. 9 (gage height, 28.32 ft), from rating curve extended as explained below; minimum daily, 5.6 cfs May 27.

Period of record: Maximum discharge, 59,600 cfs Aug. 27, 1961 (gage height, 32.23 ft), from rating curve extended above 7,000 cfs on basis of slope-area measurement; minimum, 3.0 cfs May 11, 12, 1968.

REMARKS.--Records fair except those for period of indefinite stage-discharge relation, which are poor. Minor daily regulation by small hydroelectric plant; reservoir has no significant storage. All flow into Lago Carite (usable storage, 9,500 acre-ft) diverted to Río Guamaní basin, except spillage during large floods.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	58	26	24	14	10	310	196	84	256	100	772	115
2	57	33	23	12	8.0	716	196	80	173	66	150	110
3	56	28	22	12	11	220	92	72	155	58	95	105
4	55	29	22	11	20	168	660	65	137	65	86	103
5	54	35	18	11	18	153	376	63	162	3,650	84	102
6	53	28	18	10	15	148	153	48	104	13,000	82	101
7	52	26	18	10	12	145	94	55	92	11,600	81	100
8	51	25	17	12	212	156	77	53	80	11,000	80	2,410
9	50	24	15	13	812	135	234	50	76	19,600	1,830	2,420
10	50	24	14	15	1,140	122	168	48	80	2,290	1,890	3,970
11	550	26	13	18	844	118	132	45	92	753	903	1,410
12	500	23	13	14	305	118	82	44	79	416	1,080	1,910
13	300	22	14	17	98	115	65	55	65	286	882	1,520
14	450	22	14	15	50	118	55	86	63	224	300	588
15	150	22	13	15	29	912	48	49	60	188	110	362
16	60	22	12	21	21	3,850	75	49	162	159	95	277
17	50	21	13	100	15	4,990	171	49	162	136	92	220
18	43	19	14	140	12	1,380	88	41	78	119	90	204
19	38	19	15	36	11	1,760	55	34	62	107	1,360	167
20	35	18	16	14	14	465	50	31	56	92	1,260	143
21	33	18	15	19	11	876	120	32	51	77	1,280	133
22	32	18	16	36	9.0	912	138	177	50	68	1,420	128
23	31	19	16	17	7.3	244	780	265	54	67	1,090	117
24	31	19	15	12	7.3	130	192	112	118	62	250	122
25	30	21	14	10	7.0	90	108	78	154	60	150	111
26	28	20	17	9.0	6.6	77	130	63	95	206	1,450	100
27	28	19	15	8.5	5.6	216	105	3,560	64	218	1,430	95
28	27	18	14	7.3	8.5	92	310	3,350	54	68	300	92
29	27	------	12	7.6	8.5	63	224	312	65	396	140	93
30	27	------	15	10	8.0	57	165	175	86	1,120	125	86
31	26	------	12	------	18	------	108	152	------	818	------	90
TOTAL	3,032	644	489	646.4	3,753.8	18,856	5,447	9,377	2,985	67,069	18,957	17,504
MEAN	97.8	23.0	15.8	21.5	121	629	176	302	99.5	2,164	632	565
MAX	550	35	24	140	1,140	4,990	780	3,560	256	19,600	1,890	3,970
MIN	26	18	12	7.3	5.6	57	48	31	50	58	80	86
CFSM	1.78	.42	.29	.39	2.21	11.5	3.21	5.51	1.82	39.5	11.5	10.3
IN.	2.06	.44	.33	.44	2.55	12.80	3.70	6.37	2.03	45.53	12.87	11.88
AC-FT	6,010	1,280	970	1,280	7,450	37,400	10,800	18,600	5,920	133,000	37,600	34,720

CAL YR 1970 TOTAL 148,760.2 MEAN 408 MAX 19,600 MIN 5.6 CFSM 7.45 IN 100.99 AC-FT 295,100
WTR YR 1970 TOTAL 76,229.2 MEAN 209 MAX 4,990 MIN 5.6 CFSM 3.81 IN 51.75 AC-FT 151,200

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
06-01	1630	14.25	11,500	08-27	2100	17.31	18,100	11-09	1815	13.08	9,020	12-10	0015	15.56	14,200
06-17	0515	16.93	17,200	10-09	0245	28.32	48,000	11-19	1830	11.13	5,110				

NOTE.--Indefinite stage-discharge relation Nov. 1 to Dec. 9.

RIO DE LA PLATA BASIN

50045700 Río Lajas at Toa Alta, P.R.

LOCATION.--Lat 18° 23' 28", long 66° 15' 28", on left bank, 0.4 mile upstream from Highway 165 bridge, 0.6 mile upstream from Río de la Plata, and 0.6 mile west of Toa Alta.

DRAINAGE AREA.--About 8.4 sq mi.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 36 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge recorded, 5,780 cfs Oct. 9 (gage height, 11.2 ft, from floodmark), from rating curve extended as explained below; minimum, 1.3 cfs Apr. 18.

Period of record: Maximum discharge, 5,780 cfs Oct. 9, 1970 (gage height, 11.2 ft, from floodmark), from rating curve extended above 30 cfs on basis of slope-area measurements at gage heights 4.72 and 6.61 ft; minimum, 0.7 cfs Apr. 28, 1968, result of temporary dam upstream.

REMARKS.--Records good except for periods of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.6	6.9	3.9	2.3	3.3	25	10	13	29	41	20	40
2	7.5	6.7	3.7	2.4	2.5	13	8.1	7.8	23	57	15	35
3	7.4	6.5	3.6	2.5	2.8	12	8.4	10	20	67	16	30
4	7.4	6.3	3.5	2.4	28	8.4	100	8.2	17	69	13	27
5	7.2	6.2	3.4	2.3	4.7	7.5	22	7.0	16	118	13	25
6	7.2	6.0	3.2	2.4	3.1	8.4	15	6.4	15	790	100	22
7	7.1	5.9	3.4	2.5	2.7	8.1	12	7.8	14	479	50	22
8	7.0	5.8	3.2	2.4	16	6.0	9.8	11	13	252	200	100
9	6.9	5.8	3.1	2.5	20	5.3	8.7	11	12	1,000	800	500
10	6.8	5.7	3.1	3.1	24	21	10	7.5	11	100	300	700
11	109	5.7	3.1	2.5	189	12	8.4	6.9	9.8	61	100	500
12	55	6.9	3.1	2.3	130	28	6.9	6.6	35	46	80	400
13	21	6.0	3.2	2.3	44	18	6.3	6.9	14	36	70	100
14	24	5.8	3.0	2.3	27	18	6.0	6.6	42	30	60	80
15	57	5.5	3.0	2.4	18	13	5.5	6.0	15	27	55	60
16	27	5.3	3.0	2.0	14	180	19	41	11	24	50	50
17	19	5.1	2.9	2.0	11	49	9.4	42	10	22	45	40
18	15	4.9	2.9	1.9	9.4	36	6.0	9.0	11	50	40	50
19	13	4.8	3.2	1.9	8.1	42	7.5	6.9	9.4	20	45	60
20	12	4.6	4.7	1.9	7.2	22	9.4	6.6	8.1	66	40	45
21	11	4.5	3.1	2.2	6.9	36	7.8	6.6	20	35	100	50
22	10	4.4	2.6	2.5	6.3	21	44	69	12	17	80	40
23	9.6	4.3	2.7	2.2	6.0	16	17	26	13	15	60	35
24	9.2	4.6	2.7	2.0	5.8	13	6.9	12	23	14	50	30
25	9.0	6.7	2.7	2.3	5.3	38	23	9.0	26	14	45	27
26	8.5	4.9	2.4	2.2	4.8	22	24	8.1	13	13	200	25
27	8.2	4.5	2.4	1.9	4.6	15	11	180	12	13	100	23
28	8.0	4.0	3.0	1.9	5.8	12	50	452	10	12	60	21
29	7.6	------	2.5	2.0	6.3	11	11	69	60	46	50	20
30	7.3	------	2.4	3.6	11	11	7.8	48	88	200	45	19
31	7.1	------	2.4	------	15	------	6.8	32	------	30	------	19
TOTAL	519.6	154.3	95.1	69.1	642.6	727.7	497.7	1,139.9	612.3	3,764	2,902	3,195
MEAN	16.8	5.51	3.07	2.30	20.7	24.3	16.1	36.8	20.4	121	96.7	103
MAX	109	6.9	4.7	3.6	189	180	100	452	88	1,000	800	700
MIN	6.8	4.0	2.4	1.9	2.5	5.3	5.5	6.0	8.1	12	13	19
CFSM	1.94	.64	.36	.27	2.39	2.81	1.86	4.25	2.36	14.0	11.2	11.9
IN.	2.23	.66	.41	.30	2.76	3.13	2.14	4.90	2.63	16.19	12.48	13.74
AC-FT	1,030	306	189	137	1,270	1,440	987	2,260	1,210	7,470	5,760	6,340

CAL YR 1970 TOTAL 14,319.3 MEAN 39.2 MAX 1,000 MIN 1.9 CFSM 4.53 IN 61.59 AC-FT 28,400
WTR YR 1970 TOTAL 6,311.7 MEAN 17.3 MAX 547 MIN 1.9 CFSM 2.00 IN 27.15 AC-FT 12,520

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
07-22	1630	6.76	1,800	08-28	0400	8.57	3,160	10-06	1100	8.78	3,320	11-09	--	Unknown	Unknown
07-28	0445	7.13	2,020	09-30	1715	7.89	2,610	10-09	--	11.2	5,780	12-10	--	Unknown	Unknown

NOTE.--No gage-height record Jan. 25 to Apr. 8, Oct. 9 to Dec. 31.

RIO DE LA PLATA BASIN

50046000 Río de la Plata at Toa Alta, P.R.

LOCATION.--Lat 18° 23' 50", long 66° 15' 17", on left bank, at upstream side of bridge on Highway 165, 800 ft downstream from Río Lajas, and 0.6 mile northwest of Toa Alta.

DRAINAGE AREA.--200 sq mi (excludes 8.2 sq mi upstream from Lago Carite).

PERIOD OF RECORD.--November 1959 (measurement only), January 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 8.55 ft above mean sea level (levels by P.R. Department of Public Works). Prior to Feb. 25, 1960, wire-weight at same site and datum.

AVERAGE DISCHARGE.--11 years, 357 cfs (24.24 inches per year, 258,600 acre-ft per year); median of yearly mean discharges, 319 cfs (21.66 inches per year, 231,100 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 78,500 cfs Oct. 9 (gage height, 34.0 ft, from floodmark), from rating curve as explained below; minimum daily, 20 cfs Apr. 6, 27.

Period of record: Maximum discharge, 95,500 cfs Sept. 6, 1960 (gage height, 35.8 ft, from floodmark), from rating curve extended above 12,000 cfs on basis of contracted-opening measurement of peak flow; minimum, 6.0 cfs May 29, 1961 (gage height, 7.10 ft). Flood of Sept. 13, 1928, reached a stage of 37 ft, from information by local residents.

REMARKS.--Records fair. Some regulation of low and medium flow by Lago Comerío (usable storage, 600 acre-ft). All flow into Lago Carite (usable storage, 9,500 acre-ft) diverted to Río Guamaní basin, except spillage during large floods.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	152	45	76	41	293	697	267	300	596	220	975	530
2	150	116	64	26	182	1,790	349	350	622	180	668	482
3	147	190	176	38	44	454	327	300	436	200	554	466
4	144	149	93	73	114	241	1,220	250	371	210	558	446
5	138	106	136	31	114	209	1,220	300	290	2,000	486	450
6	133	53	65	20	82	181	626	250	393	30,000	965	470
7	130	156	85	29	547	84	387	200	498	25,000	970	443
8	126	41	38	37	2,000	166	252	250	450	20,000	1,000	2,510
9	123	83	26	41	4,000	178	445	200	298	40,000	2,710	4,870
10	124	188	60	120	2,500	203	459	250	259	10,000	3,390	5,320
11	971	121	53	109	1,700	197	296	195	254	3,000	1,780	4,340
12	982	88	78	36	1,400	296	278	140	734	1,340	1,270	5,980
13	479	83	81	24	1,000	218	279	178	382	1,050	1,510	3,340
14	950	95	114	78	554	138	214	183	447	925	762	1,700
15	639	32	33	92	352	109	190	157	313	930	636	1,170
16	431	46	26	93	266	4,120	296	239	244	785	594	925
17	300	138	43	51	134	5,350	353	470	412	726	514	794
18	230	88	73	25	175	1,900	313	221	339	776	514	708
19	195	88	79	45	190	2,320	297	172	224	758	558	776
20	171	88	93	88	142	1,190	290	136	197	758	1,220	654
21	156	103	120	177	155	757	246	152	368	1,200	1,260	634
22	146	43	32	91	196	1,490	1,050	348	256	772	2,010	586
23	149	28	22	70	131	728	601	1,030	285	677	1,600	582
24	147	99	59	80	63	465	629	491	496	618	772	562
25	110	162	81	82	98	394	450	293	529	598	1,180	518
26	126	128	83	31	178	338	390	236	300	695	1,480	454
27	146	97	81	20	110	261	350	1,130	180	1,390	2,750	454
28	122	92	79	43	125	359	550	10,900	200	731	940	462
29	106	------	32	57	120	313	450	1,400	260	594	650	436
30	156	------	29	236	144	251	400	807	320	1,760	558	443
31	170	------	148	------	248	------	350	664	------	1,320	------	412
TOTAL	8,249	2,746	2,258	1,984	17,357	25,397	13,824	22,192	10,953	149,213	34,834	41,917
MEAN	266	98.1	72.8	66.1	560	847	446	716	365	4,813	1,161	1,352
MAX	982	190	176	236	4,000	5,350	1,220	10,900	734	40,000	3,390	5,980
MIN	106	28	22	20	44	84	190	136	180	180	486	412
CFSM	1.33	.49	.36	.33	2.80	4.24	2.23	3.58	1.83	24.1	5.81	6.76
IN.	1.53	.51	.42	.37	3.23	4.72	2.57	4.13	2.04	27.75	6.48	7.80
AC-FT	16,360	5,450	4,480	3,940	34,430	50,370	27,420	44,020	21,730	296,000	69,090	83,140

CAL YR 1970 TOTAL 330,924 MEAN 907 MAX 40,000 MIN 20 CFSM 4.54 IN 61.55 AC-FT 656,400
WTR YR 1970 TOTAL 158,787 MEAN 435 MAX 10,900 MIN 20 CFSM 2.18 IN 29.53 AC-FT 315,000

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-08	--	21.6	10,500	08-28	0815	25.83	23,700	11-09	1545	19.30	7,350	12-11	2345	21.01	9,570
06-17	1145	22.52	12,300	10-09	--	34.0	78,500	11-27	0015	19.12	7,150				

RIO DE BAYAMON BASIN

50047850 Río de Bayamón near Bayamón, P.R.

LOCATION.--Lat 18° 20' 08", long 66° 08' 13", on left bank, at rock quarry near Highway 174, 1.3 miles south of Colonia Santa Rosa, and 4.7 miles south of the plaza in Bayamón.

DRAINAGE AREA.--41.8 sq mi.

PERIOD OF RECORD.--September 1964 to Oct. 1970 (discontinued).

GAGE.--Water-stage recorder with bedrock and concrete control. Altitude of gage is 90 ft (from topographic map).

EXTREMES.--Maximum discharge during period January to October, current year, 28,000 cfs Oct. 9 (gage height, 20.2 ft, from floodmark), from rating curve extended above 1,600 cfs on basis of slope-area measurements of peak flow at gage heights 13.1 and 20.2 ft; minimum daily, 5.2 cfs May 2.
Period of record: Maximum discharge, 28,000 cfs Oct. 9, 1970 (gage height, 20.2 ft, from floodmark), from rating curve extended as explained above; minimum, 0,7 cfs July 2, 1967.

REMARKS.--Records good except for periods of no gage-height record, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14	21	12	7.0	7.9	15	30	19	66	42		
2	14	17	20	6.8	5.2	13	50	16	48	31		
3	14	14	13	6.8	6.5	13	75	292	35	61		
4	14	14	11	6.6	23	12	310	65	24	92		
5	14	15	10	6.6	6.7	20	173	28	27	1,050		
6	13	14	9.6	6.4	8.2	70	66	21	25	5,300		
7	13	14	9.2	6.4	98	25	36	25	23	4,000		
8	14	13	9.2	6.2	295	18	24	34	21	2,400		
9	13	13	9.0	6.2	930	16	26	21	22	5,500		
10	14	13	9.0	20	478	15	22	21	23			
11	270	12	9.0	8.0	200	14	18	16	20			
12	192	14	8.8	6.4	100	13	17	16	339			
13	172	12	8.8	6.0	60	13	15	51	44			
14	49	12	8.6	6.3	40	12	15	28	44			
15	73	11	8.6	6.0	33	50	14	18	34			
16	51	11	8.4	5.8	28	500	29	25	25			
17	26	10	8.4	6.1	25	400	19	55	27			
18	21	10	9.0	6.2	23	100	18	15	89			
19	19	9.6	8.2	6.0	21	50	15	15	26			
20	18	9.6	8.2	5.9	21	35	16	14	62			
21	17	11	8.0	8.6	19	50	15	17	38			
22	17	11	8.0	11	17	30	155	50	23			
23	16	12	7.6	7.3	16	25	32	45	116			
24	16	40	7.6	6.4	16	35	21	23	71			
25	16	12	9.0	6.2	15	25	33	18	171			
26	16	11	8.0	5.9	15	80	30	15	70			
27	15	10	15	5.7	14	30	28	710	47			
28	15	9.6	8.0	5.6	25	20	53	2,170	32			
29	16	------	7.6	5.9	14	90	26	142	360			
30	15	------	7.2	25	13	35	47	173	74			
31	14	------	7.0	------	70	------	17	96	------		------	
TOTAL	1,201	375.8	291.0	229.3	2,643.5	1,824	1,445	4,254	2,026			
MEAN	38.7	13.4	9.39	7.64	85.3	60.8	46.6	137	67.5			
MAX	270	40	20	25	930	500	310	2,170	360			
MIN	13	9.6	7.0	5.6	5.2	12	14	14	20			
CFSM	.93	.32	.22	.18	2.04	1.45	1.11	3.28	1.61			
IN.	1.07	.33	.26	.20	2.35	1.62	1.29	3.79	1.80			
AC-FT	2,380	745	577	455	5,240	3,620	2,870	8,440	4,020			

WTR YR 1970 TOTAL 21,379.2 MEAN 58.6 MAX 2,170 MIN 5.2 CFSM 1.40 IN 19.03 AC-FT 42,410

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
08-28	0100	12.45	9,310	09-29	1645	8.72	3,420	10-06	0930	17.10	19,900	10-09	0400	20.2	28,000
09-12	1745	10.50	5,960												

NOTE.--No gage-height record Mar. 13 to Apr. 13, May 7 to June 29.

RIO GRANDE DE LOIZA BASIN

50055000 Río Grande de Loíza at Caguas, P.R.

LOCATION.--Lat 18° 14' 35", long 66° 00' 35", on right bank, at bridge on Highway 189, 1.2 miles downstream from Río Turabo, and 1.8 miles east of the plaza in Caguas.

DRAINAGE AREA.--89.8 sq mi.

PERIOD OF RECORD.--1958 (low-flow measurement only), February 1959 to November 1959 (monthly measurements only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft above mean sea level, datum of 1941.

AVERAGE DISCHARGE.--11 years (1960-70), 234 cfs (35.39 inches per year, 169,500 acre-ft per year); median of yearly mean discharges, 258 cfs (39.02 inches per year, 186,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 62,800 cfs Oct. 9 (gage height, 29.3 ft, from floodmark), from rating curve extended above 6,000 cfs on basis of slope-area mesurement; minimum, 18 cfs Apr. 16.
Period of record: Maximum discharge, 71,500 cfs Sept. 6, 1960 (gage height, 31.17 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement; minimum, 10 cfs Apr. 5, 10, 29, 1968.

REMARKS.--Records good. Small diversions for municipal supply at Caguas and San Lorenzo.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	111	77	55	29	34	421	613	205	338	461	239	183
2	109	82	58	28	30	265	397	283	374	331	212	182
3	113	75	54	29	152	125	314	193	284	179	357	172
4	108	84	48	29	306	87	429	171	244	610	229	172
5	103	90	46	26	104	82	350	221	210	4,450	220	176
6	101	75	44	26	83	76	284	182	169	9,990	218	171
7	98	72	44	25	59	144	238	156	151	10,600	233	170
8	98	70	44	24	700	122	213	147	132	6,460	269	1,320
9	98	66	41	27	899	80	264	144	224	17,900	1,140	1,910
10	93	73	42	41	1,330	68	250	139	217	1,570	1,150	4,210
11	128	73	39	36	1,530	78	227	128	249	720	343	1,610
12	154	64	38	32	567	74	192	199	148	500	317	1,770
13	104	60	37	28	278	132	173	150	127	380	260	999
14	106	62	37	27	158	135	162	152	125	340	231	485
15	143	63	36	25	124	1,130	152	130	155	310	213	353
16	130	60	35	23	105	3,610	166	158	278	290	200	306
17	100	57	34	48	94	7,840	210	141	185	270	193	281
18	95	57	35	180	84	2,150	162	117	147	255	191	271
19	95	55	36	56	74	2,530	141	106	121	245	257	261
20	91	51	42	37	79	1,020	195	103	111	230	285	234
21	89	51	41	66	82	1,050	253	108	103	220	349	234
22	87	50	36	86	66	738	381	262	109	215	553	227
23	83	55	35	48	59	430	594	225	209	210	324	221
24	82	59	40	40	55	347	252	291	162	205	229	239
25	77	62	34	34	52	306	505	157	733	201	276	217
26	76	52	32	31	48	323	625	154	183	446	515	207
27	76	50	32	28	51	362	378	3,380	136	319	400	199
28	76	50	43	26	47	252	551	2,670	114	204	225	200
29	77	------	48	28	46	229	328	412	925	191	198	200
30	73	------	33	31	44	259	251	265	498	444	189	180
31	75	------	31	------	60	------	210	220	------	479	------	198
TOTAL	3,049	1,795	1,250	1,194	7,400	24,465	9,460	11,369	7,161	59,225	10,015	17,558
MEAN	98.4	64.1	40.3	39.8	239	816	305	367	239	1,910	334	566
MAX	154	90	58	180	1,530	7,840	625	3,380	925	17,900	1,150	4,210
MIN	73	50	31	23	30	68	141	103	103	179	189	170
CFSM	1.10	.71	.45	.44	2.66	9.09	3.40	4.09	2.66	21.3	3.72	6.30
IN.	1.26	.74	.52	.49	3.07	10.13	3.92	4.71	2.97	24.53	4.15	7.27
AC-FT	6,050	3,560	2,480	2,370	14,680	48,530	18,760	22,550	14,200	117,500	19,860	34,830

CAL YR 1970 TOTAL 153,941 MEAN 422 MAX 17,900 MIN 23 CFSM 4.70 IN 63.77 AC-FT 305,300
WTR YR 1970 TOTAL 99,019 MEAN 271 MAX 7,840 MIN 23 CFSM 3.02 IN 41.02 AC-FT 196,400

PEAK DISCHARGE (BASE, 8,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
06-17	0330	24.20	40,800	08-27	1930	19.60	23,600	10-09	0600	29.3	62,800

RIO GRANDE DE LOIZA BASIN

50057000 Río Gurabo at Gurabo, P.R.

LOCATION.--Lat 18° 15' 30", long 65° 58' 05", on left bank, at bridge on Highway 181, 0.3 mile east of Gurabo, and 4.7 miles upstream from Río Grande de Loíza.

DRAINAGE AREA.--60.2 sq mi.

PERIOD OF RECORD.--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 140 ft (from topographic map).

AVERAGE DISCHARGE.--11 years (1960-70), 137 cfs (30.90 inches per year, 99,260 acre-ft per year); median of yearly mean discharges, 117 cfs (26.39 inches per year, 84,770 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 64,100 cfs Oct. 9 (gage height, 26.64 ft), from rating curve extended as explained below; minimum daily, 8.0 cfs Apr. 6.

Period of record: Maximum discharge, 74,600 cfs Sept. 6, 1960 (gage height, 27.7 ft, from floodmark), from rating curve extended above 8,000 cfs on basis of slope-area measurement at gage height 21.6 ft, contracted-opening culvert and flow-over-road measurement at gage height 23.76 ft, and estimate of peak flow based on slope-area measurements of Río Gurabo and Río Valenciano, 7 miles upstream, adjusted for channel storage and flow from intervening area; minimum, 4.5 cfs Feb. 21, 25, 1968.

REMARKS.--Records fair. Diversion above station for municipal supply.

REVISIONS.--WRD Puerto Rico 1968: 1959 (M), 1960-61, 1964-66 (P).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	62	59	18	16	24	276	684	99	378	355	132	82
2	60	50	19	16	17	456	510	97	444	205	575	85
3	60	53	21	10	61	120	373	79	276	99	592	86
4	57	86	24	9.3	521	71	456	64	181	640	252	80
5	55	57	25	8.7	119	41	358	139	156	1,280	244	80
6	52	50	24	8.0	73	46	238	129	139	8,230	172	80
7	51	46	24	8.4	46	233	164	81	117	7,550	172	80
8	52	43	26	12	69	134	144	90	99	2,400	201	470
9	51	39	22	23	148	60	161	73	252	17,700	1,340	1,080
10	49	39	20	40	567	35	132	64	282	780	1,350	2,200
11	82	39	21	59	645	45	141	60	329	430	338	852
12	93	36	15	26	447	45	101	56	117	350	239	776
13	62	34	14	18	262	39	84	58	139	292	203	398
14	59	34	15	22	113	62	75	77	146	257	176	233
15	255	32	14	24	66	450	66	64	141	247	197	190
16	162	30	13	17	46	1,690	99	77	355	221	152	166
17	84	29	13	27	34	4,630	214	101	324	203	148	150
18	68	27	23	87	24	741	101	66	236	192	137	141
19	70	25	22	37	23	1,360	66	56	115	182	130	134
20	58	24	23	19	18	615	252	52	79	182	156	127
21	51	24	31	39	17	507	408	48	97	175	429	122
22	48	27	32	76	16	423	486	254	50	175	733	122
23	48	30	28	44	15	271	510	349	113	194	246	112
24	45	29	25	46	15	206	262	417	181	159	157	112
25	45	26	23	36	14	201	262	166	672	146	127	104
26	45	21	17	30	14	273	564	99	206	213	147	97
27	45	19	17	18	14	217	378	3,230	117	291	187	90
28	44	18	24	9.3	13	148	444	1,890	88	157	88	115
29	43	------	41	26	13	122	249	414	358	141	74	103
30	42	------	25	23	15	525	146	335	304	217	88	87
31	42	------	18	------	45	------	115	260	------	160	------	83
TOTAL	2,040	1,026	677	834.7	3,514	14,042	8,243	9,044	6,491	43,823	9,182	8,637
MEAN	65.8	36.6	21.8	27.8	113	468	266	292	216	1,414	306	279
MAX	255	86	41	87	645	4,630	684	3,230	672	17,700	1,350	2,200
MIN	42	18	13	8.0	13	35	66	48	50	99	74	80
CFSM	1.09	.61	.36	.46	1.88	7.77	4.42	4.85	3.59	23.5	5.08	4.63
IN.	1.26	.63	.42	.52	2.17	8.68	5.09	5.59	4.01	27.08	5.67	5.34
AC-FT	4,050	2,040	1,340	1,660	6,970	27,850	16,350	17,940	12,870	86,920	18,210	17,130

CAL YR 1970 TOTAL 107,553.7 MEAN 295 MAX 17,700 MIN 8.0 CFSM 4.90 IN 66.46 AC-FT 213,300
WTR YR 1970 TOTAL 68,706.7 MEAN 188 MAX 7,090 MIN 8.0 CFSM 3.12 IN 42.46 AC-FT 136,300

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
06-17	0545	17.25	13,600	10-09	0545	26.64	64,100	11-10	0115	13.20	6,280	12-10	0545	13.56	6,780
08-27	2130	19.00	19,000												

RIO GRANDE DE LOIZA BASIN

50061300 Río Canovanillas near Loíza, P.R.

LOCATION.--Lat 18° 21' 13", long 65° 55' 00", on left bank, 0.7 mile downstream from Quebrada Limones, and 2.1 miles southwest of Loíza.

DRAINAGE AREA.--14.4 sq mi.

PERIOD OF RECORD.--1966 (annual low-flow measurement only), January 1967 to current year.

GAGE.--Water-stage recorder and V-notch broad-crested weir. Altitude of gage is 40 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 13,100 cfs Oct. 9 (gage height, 10.03 ft), from rating curve extended above 30 cfs on basis of computation of flow over weir; minimum, 2.8 cfs Apr. 29, 30.
Period of record: Maximum discharge, 13,100 cfs Oct. 9, 1970 (gage height, 10.03 ft), from rating curve extended beyond 30 cfs on basis of computation of flow over weir; minimum, 0.7 cfs May 7, 8, 1968.

REMARKS.--Records fair except those for period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14	10	5.1	3.9	3.5	461	36	12	19	13	20	17
2	14	12	5.1	3.9	3.3	67	42	12	44	14	50	17
3	13	10	5.1	3.8	4.1	20	27	11	16	15	70	16
4	13	15	5.3	3.8	42	14	35	11	12	82	19	16
5	13	11	5.0	3.6	7.5	13	29	11	197	254	17	25
6	12	9.8	5.1	3.6	4.8	13	24	11	25	1,690	16	17
7	12	9.8	5.3	3.5	4.7	26	17	11	14	1,620	15	15
8	12	9.2	5.3	3.3	347	17	15	10	12	550	25	550
9	11	8.5	5.3	4.3	334	12	15	10	66	2,870	500	300
10	11	8.5	5.1	5.1	169	11	15	9.8	22	215	100	400
11	11	8.2	5.0	4.3	417	11	14	9.0	15	68	50	450
12	38	8.0	5.0	3.6	94	10	13	8.8	12	50	35	100
13	15	7.5	5.0	3.3	37	9.5	12	11	11	37	25	60
14	12	7.3	5.0	3.3	19	9.5	12	14	11	32	22	44
15	503	7.3	5.0	3.5	13	35	11	10	11	31	20	35
16	42	7.3	4.8	3.3	11	302	40	21	15	28	19	31
17	21	7.1	4.6	4.8	9.5	826	38	19	28	27	18	29
18	16	6.8	4.6	4.6	8.8	142	15	9.5	20	26	21	27
19	14	6.6	5.1	4.4	8.2	330	12	8.2	12	24	17	27
20	13	6.4	6.8	3.3	8.0	48	12	7.5	24	23	35	27
21	12	6.2	5.5	4.6	7.8	53	12	11	13	22	70	26
22	12	6.2	5.0	7.5	7.3	36	74	35	11	25	80	25
23	12	6.4	4.6	4.8	7.1	27	24	16	15	30	35	25
24	12	7.3	4.4	3.6	7.1	24	15	9.5	18	22	25	25
25	11	7.1	4.4	3.5	6.6	29	36	11	31	20	22	24
26	11	6.2	4.3	3.2	6.4	26	37	11	19	40	50	23
27	11	6.0	4.1	3.1	6.4	22	33	692	14	20	30	22
28	11	5.3	4.6	3.0	6.8	20	109	132	11	19	23	24
29	12	------	4.6	3.0	6.8	19	22	22	58	18	20	22
30	11	------	4.1	3.1	17	83	15	50	28	17	18	20
31	10	------	3.9	------	79	------	13	22	------	16	------	20
TOTAL	935	227.0	152.1	116.6	1,703.7	2,716.0	824	1,238.3	804	7,918	1,467	2,459
MEAN	30.2	8.11	4.91	3.89	55.0	90.5	26.6	39.9	26.8	255	48.9	79.3
MAX	503	15	6.8	7.5	417	826	109	692	197	2,870	500	550
MIN	10	5.3	3.9	3.0	3.3	9.5	11	7.5	11	13	15	15
CFSM	2.10	.56	.34	.27	3.82	6.29	1.85	2.77	1.86	17.7	3.40	5.51
IN.	2.42	.59	.39	.30	4.40	7.02	2.13	3.20	2.08	20.46	3.79	6.35
AC-FT	1,850	450	302	231	3,380	5,390	1,630	2,460	1,590	15,710	2,910	4,880

CAL YR 1970 TOTAL 20,560.7 MEAN 56.3 MAX 2,870 MIN 3.0 CFSM 3.91 IN 53.12 AC-FT 40,780
WTR YR 1970 TOTAL 12,601.6 MEAN 34.5 MAX 1,500 MIN 3.0 CFSM 2.40 IN 32.56 AC-FT 25,000

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-31	2300	8.05	7,980	08-27	1730	8.55	9,210	10-07	0830	8.57	9,260	10-09	0245	10.03	13,100
06-17	0230	6.35	4,360	09-05	1330	5.72	3,380								

NOTE.--No gage-height record Oct. 21 to Dec. 13.

RIO GRANDE DE LOIZA BASIN

50061800 Río Canóvanas near Campo Rico, P.R.

LOCATION.–Lat 18° 19' 08", long 65° 53' 21", at center pier on downstream side of bridge on paved secondary road, 0.4 mile northeast of junction of Highways 185 and 186, 1.5 miles south of Campo Rico, and 4.4 miles south of Loíza.

DRAINAGE AREA.--9.84 sq mi.

PERIOD OF RECORD.--March 1967 to current year.

GAGE.–Water-stage recorder. Altitude of gage is 225 ft (from topographic map).

EXTREMES.–Current year: Maximum discharge, 10,600 cfs Oct. 9 (gage height, 12.0 ft, from floodmark), from slope-area measurement of peak flow; minimum, 4.6 cfs Apr. 29.

Period of record: Maximum discharge, 10,600 cfs Nov. 9, 1969 and Oct. 9, 1970 (gage height, 12.0 ft, from floodmarks), from slope-area measurement of peak flow; minimum, 3.2 cfs Feb. 24, 25, 1968.

REMARKS.–Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	18	17	14	6.4	5.8	48	53	19	29	63	26	28
2	18	21	14	6.1	5.3	40	45	19	46	37	100	32
3	18	17	14	6.1	336	17	40	18	31	25	79	28
4	18	21	11	6.4	219	14	45	18	23	95	37	26
5	17	17	9.6	6.4	12	15	34	18	35	343	38	36
6	17	16	9.1	6.4	8.4	15	28	18	24	1,590	28	31
7	18	17	9.1	5.8	6.3	40	23	16	21	1,330	26	26
8	17	15	9.5	5.7	122	23	21	17	19	718	62	737
9	17	14	9.5	8.0	52	15	21	16	78	3,160	684	394
10	17	13	9.0	9.1	116	13	22	15	31	190	158	481
11	149	13	9.0	7.2	390	12	21	14	25	67	61	596
12	55	13	8.7	6.2	283	11	18	14	24	58	44	332
13	33	13	8.7	6.1	91	11	17	48	20	56	38	99
14	34	13	8.3	5.8	42	11	17	21	23	52	35	71
15	734	13	8.3	5.6	31	51	21	31	23	52	33	60
16	65	13	8.0	6.2	25	320	26	38	59	48	31	55
17	39	13	8.3	7.5	22	439	90	22	51	46	31	50
18	32	13	10	7.9	20	84	20	30	34	43	30	46
19	31	12	12	5.9	19	247	17	14	21	42	34	41
20	26	12	14	5.3	17	64	22	14	19	39	46	40
21	25	11	10	7.5	17	55	24	16	18	39	74	38
22	24	11	8.9	13	16	49	151	70	17	45	108	37
23	22	13	8.6	8.9	15	33	48	29	26	44	49	36
24	22	13	8.6	7.9	15	28	29	26	27	33	35	36
25	20	12	7.9	6.3	14	38	30	19	55	31	32	35
26	19	11	7.5	5.4	14	29	42	17	23	62	64	34
27	19	11	7.9	5.1	13	26	43	451	20	41	67	33
28	18	11	9.7	4.9	13	23	53	127	19	30	35	37
29	21	------	8.5	5.2	12	21	29	38	240	39	32	33
30	17	------	7.5	8.0	15	120	23	33	51	30	30	30
31	17	------	6.5	------	32	------	21	32	------	28	------	30
TOTAL	1,597	389	295.7	202.3	1,998.8	1,912	1,094	1,278	1,132	8,476	2,147	3,588
MEAN	51.5	13.9	9.54	6.74	64.5	63.7	35.3	41.2	37.7	273	71.6	116
MAX	734	21	14	13	390	439	151	451	240	3,160	684	737
MIN	17	11	6.5	4.9	5.3	11	17	14	17	25	26	26
CFSM	5.23	1.41	.97	.69	6.56	6.47	3.59	4.19	3.83	27.7	7.28	11.8
IN.	6.04	1.47	1.12	.76	7.56	7.23	4.14	4.83	4.28	32.05	8.12	13.57
AC-FT	3,170	772	587	401	3,960	3,790	2,170	2,530	2,250	16,810	4,260	7,120

CAL YR 1970 TOTAL 24,109.8 MEAN 66.1 MAX 3,160 MIN 4.9 CFSM 6.72 IN 91.16 AC-FT 47,820
WTR YR 1970 TOTAL 14,753.8 MEAN 40.4 MAX 1,370 MIN 4.9 CFSM 4.11 IN 55.78 AC-FT 29,260

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	0130	8.30	4,750	08-27	1800	6.84	3,040	10-09	--	12.0	10,600	12-08	1245	9.19	6,080
05-03	2230	8.24	4,630	09-29	1645	7.22	3,420	11-09	1830	9.80	7,000				

RIO HERRERA BASIN

50062500 Río Herrera near Colonia Dolores, P.R.

LOCATION.--Lat 18° 21' 02", long 65° 52' 00", on right bank, at bridge on Highway 958, 2.0 miles south of Colonia Dolores, and 3.2 miles southwest of Río Grande.

DRAINAGE AREA.--2.75 sq mi.

PERIOD OF RECORD.--March to September 1963 (occasional low-stage measurements only), April 1966 (annual low-flow measurements only), July 1966 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 230 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 2,390 cfs Dec. 8 (gage height, 12.78 ft), on basis of computation of peak flow through culvert; minimum, 1.8 cfs Apr. 15, 19, 20, May 1, 2.

Period of record: Maximum discharge, 4,210 cfs Nov. 22, 1966 (gage height, 15.21 ft, from floodmark), on basis of computation of peak flow through culvert and flow-over-road measurement; minimum, 1.5 cfs Oct. 6, 1967.

REMARKS.--Records fair except those for period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.6	4.9	4.1	2.1	2.0	106	6.9	7.0	14	4.6	7.0	7.5
2	4.8	5.0	4.0	2.1	1.9	22	6.8	6.6	20	7.1	19	10
3	4.8	4.8	4.2	2.1	15	8.9	12	6.2	10	7.5	12	7.3
4	4.6	8.6	3.7	2.1	19	7.5	12	6.0	7.6	51	7.6	16
5	4.5	4.8	3.7	2.0	2.8	7.3	16	5.8	6.9	100	7.0	21
6	4.6	5.1	3.6	2.0	2.4	8.9	11	7.4	6.5	325	6.6	8.6
7	4.5	5.2	3.5	2.0	2.3	8.5	6.8	6.0	7.3	250	7.8	7.1
8	4.4	4.4	3.4	2.0	270	6.4	6.0	6.8	6.1	154	18	351
9	4.2	4.3	3.3	2.3	36	5.8	11	5.6	6.6	427	264	162
10	4.2	4.2	3.2	2.3	51	5.6	12	5.0	13	59	35	192
11	75	4.1	3.1	2.1	142	5.4	9.0	4.8	6.1	24	18	184
12	27	4.0	3.0	2.0	48	5.2	7.4	4.7	5.6	17	11	206
13	8.8	3.8	3.0	2.0	18	4.9	6.8	6.1	5.4	14	9.4	67
14	7.6	3.7	2.9	1.9	12	4.7	6.8	4.5	6.4	12	8.8	28
15	124	3.7	2.8	2.0	10	10	9.0	5.6	6.5	11	8.5	22
16	10	3.7	2.7	2.9	8.8	13	12	13	6.9	9.6	7.7	21
17	8.0	3.7	2.7	2.2	7.9	73	48	7.1	6.1	9.0	7.7	16
18	7.6	3.8	2.7	2.0	7.1	25	8.4	4.6	5.5	9.0	7.4	19
19	7.3	3.7	2.9	1.9	6.7	33	6.8	4.3	4.9	9.0	7.4	48
20	7.0	3.7	2.6	1.9	6.6	11	9.4	4.1	4.7	8.3	8.6	13
21	6.7	3.7	2.4	2.5	6.2	20	10	6.2	4.6	8.3	36	12
22	6.6	4.2	2.4	5.4	6.0	13	62	12	4.6	7.8	18	11
23	6.4	4.4	2.4	2.3	5.8	9.4	25	5.6	5.0	7.5	94	17
24	6.1	5.2	2.3	2.1	5.6	8.4	13	4.6	17	7.3	7.5	17
25	6.1	4.3	2.2	2.0	5.5	9.7	14	11	13	7.2	27	10
26	5.8	4.1	2.2	2.0	5.3	13	17	8.3	6.3	11	48	9.3
27	5.5	3.8	2.3	2.0	5.0	7.9	22	115	5.8	7.5	16	8.8
28	6.0	4.0	2.6	1.9	6.4	6.8	28	23	4.5	6.8	10	8.4
29	7.5	------	2.2	2.0	5.0	6.6	13	10	14	8.7	8.8	8.0
30	5.3	------	2.2	2.1	5.1	8.1	9.0	28	6.0	13	7.9	7.8
31	5.0	------	2.1	------	54	------	7.6	16	------	7.8	------	7.6
TOTAL	394.5	122.9	90.4	66.2	779.4	475.0	444.7	360.9	236.9	1,601.0	751.7	1,523.4
MEAN	12.7	4.39	2.92	2.21	25.1	15.8	14.3	11.6	7.90	51.6	25.1	49.1
MAX	124	8.6	4.2	5.4	270	106	62	115	20	427	264	351
MIN	4.2	3.7	2.1	1.9	1.9	4.7	6.0	4.1	4.5	4.6	6.6	7.1
CFSM	4.62	1.60	1.06	.80	9.13	5.75	5.20	4.22	2.87	18.8	9.13	17.9
IN.	5.34	1.66	1.22	.90	10.54	6.43	6.02	4.88	3.20	21.66	10.17	20.61
AC-FT	782	244	179	131	1,550	942	882	716	470	3,180	1,490	3,020

CAL YR 1970 TOTAL 6,847.0 MEAN 18.8 MAX 427 MIN 1.9 CFSM 6.84 IN 92.62 AC-FT 13,580
WTR YR 1970 TOTAL 4,246.3 MEAN 11.6 MAX 374 MIN 1.9 CFSM 4.22 IN 57.44 AC-FT 8,420

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-08	1515	11.63	1,900	10-09	0115	12.66	2,330	11-09	1745	10.58	1,520	12-08	1430	12.78	2,390
05-11	0630	10.04	1,360												

NOTE.--No gage-height record July 9 to Aug. 12.

RIO ESPIRITU SANTO BASIN

50063300 Río Espíritu Santo near El Verde, P.R.

LOCATION.--Lat 18° 18' 51", long 65° 49' 22", at bridge on Forest Service road, 0.5 mile east of Highway 186, 1.1 miles upstream from Quebrada Sonadora, and 1.8 miles southeast of El Verde.

DRAINAGE AREA.--2.23 sq mi.

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,690 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,720 cfs Nov. 9 (gage height, 5.74 ft), from rating curve extended above 160 cfs on basis of computation of flow over weir; minimum, 3.7 cfs Apr. 7, 8, 9.
Period of record: Maximum discharge, 5,720 cfs Nov. 9, 1970 (gage height, 5.74 ft), from rating curve extended above 160 cfs on basis of computation of flow over weir; minimum, 2.5 cfs Nov. 2, 1968.

REMARKS.--Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.9	13	13	4.9	4.4	69	25	13	38	12	18	11
2	8.6	29	11	4.7	9.6	30	25	20	44	11	150	40
3	9.2	12	12	4.5	373	10	28	12	20	14	137	15
4	8.6	54	6.5	4.0	88	11	32	12	14	171	33	14
5	8.4	9.8	5.8	3.6	17	11	26	16	12	271	26	91
6	8.4	11	5.4	3.5	8.6	20	17	12	12	617	13	18
7	8.2	9.8	5.1	3.3	6.9	23	15	13	11	308	38	12
8	8.0	7.3	5.0	3.1	105	12	11	16	14	307	67	477
9	7.8	6.7	5.0	12	72	8.6	18	17	19	693	436	292
10	7.8	6.5	4.9	21	174	8.4	45	11	29	65	67	351
11	410	6.2	4.9	5.7	372	11	21	9.8	13	94	101	478
12	64	5.9	4.6	4.9	180	9.4	15	10	14	28	10	516
13	18	6.1	4.5	4.4	37	14	13	29	12	20	14	144
14	22	5.9	4.5	4.0	13	15	12	17	29	17	21	29
15	578	5.8	4.3	3.8	10	62	11	24	23	16	30	24
16	24	6.7	4.3	3.6	9.4	76	15	54	37	14	14	22
17	15	5.9	4.4	3.9	8.6	267	31	24	23	13	13	19
18	14	6.2	5.0	6.2	8.2	46	13	13	15	13	30	17
19	14	5.7	8.6	3.7	7.4	98	12	11	11	15	26	28
20	12	5.4	10	3.4	7.4	26	41	10	10	19	33	17
21	11	5.8	6.4	3.3	7.1	23	34	18	9.6	30	90	22
22	11	7.8	4.9	20	6.9	23	62	44	9.0	15	68	33
23	11	14	7.1	22	6.7	12	43	17	15	16	20	53
24	10	24	5.5	8.4	6.4	10	25	20	26	11	14	52
25	9.8	9.1	4.5	5.8	6.1	23	39	16	28	10	12	17
26	10	6.1	5.1	4.9	5.8	21	45	26	12	26	46	14
27	9.5	5.7	6.5	4.4	6.1	13	49	442	14	14	32	12
28	11	11	42	4.1	6.2	9.1	36	39	9.6	10	13	12
29	13	------	6.5	5.7	6.7	11	18	17	140	9.6	12	11
30	10	------	7.8	4.9	9.4	33	15	32	17	10	11	11
31	9.5	------	5.7	------	240	------	14	26	------	11	------	20
TOTAL	1,370.7	302.4	230.8	191.7	1,818.9	1,005.5	806	1,040.8	680.2	2,880.6	1,595	2,872
MEAN	44.2	10.8	7.45	6.39	58.7	33.5	26.0	33.6	22.7	92.9	53.2	92.6
MAX	578	54	42	22	373	267	62	442	140	693	436	516
MIN	7.8	5.4	4.3	3.1	4.4	8.4	11	9.8	9.0	9.6	10	11
CFSM	19.8	4.85	3.34	2.87	26.3	15.0	11.7	15.1	10.2	41.7	23.9	41.5
IN.	22.88	5.05	3.85	3.20	30.36	16.78	13.45	17.37	11.35	48.07	26.62	47.93
AC-FT	2,720	600	458	380	3,610	1,990	1,600	2,060	1,350	5,710	3,160	5,700

CAL YR 1970 TOTAL 14,794.6 MEAN 40.5 MAX 693 MIN 3.1 CFSM 18.2 IN 246.91 AC-FT 29,350
WTR YR 1970 TOTAL 10,773.2 MEAN 29.5 MAX 700 MIN 3.1 CFSM 13.2 IN 179.79 AC-FT 21,370

PEAK DISCHARGE (BASE, 3,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	0030	4.70	3,200	05-11	0030	4.83	3,260	10-09	0230	5.00	3,600	11-09	1800	5.74	5,720
05-03	2130	4.90	3,400	08-27	1700	4.90	3,400								

RIO ESPIRITU SANTO BASIN

50063800 Río Espíritu Santo near Río Grande, P.R.

LOCATION.--Lat 18° 21' 37", long 65° 48' 49", at left abutment, on downstream side of bridge on Highway 966, 0.1 mile upstream from Quebrada Jiménez, and 1.9 miles southeast of the municipality of Río Grande.

DRAINAGE AREA.--8.62 sq mi.

PERIOD OF RECORD.--February 1959 to April 1963 (annual low-flow and occasional other measurements only), August 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 9,400 cfs Oct. 9 (gage height, 12.5 ft, from floodmark), from rating curve extended above 600 cfs on basis of slope-area measurements of peak flow; minimum, 5.0 cfs Apr. 8-9.

Period of record: Maximum discharge, 9,400 cfs Oct. 9, 1970 (gage height, 12.5 ft, from floodmark), from rating curve extended above 600 cfs on basis of slope-area measurements; minimum, 5.0 cfs Apr. 8, 9, 1970.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	15	12	28	8.6	8.2	406	92	30	134	26	30	23
2	14	45	26	8.2	16	129	74	40	129	53	320	104
3	14	18	33	7.5	360	38	76	26	55	48	293	38
4	13	122	13	6.5	228	31	109	25	31	385	69	58
5	12	30	10	6.0	60	31	104	27	26	555	60	209
6	11	24	8.9	5.7	24	70	79	25	22	1,210	33	56
7	11	31	8.6	5.5	17	159	52	22	20	756	73	29
8	11	18	7.9	5.0	496	64	36	31	21	595	193	727
9	10	15	7.9	26	240	28	56	30	31	1,340	761	576
10	10	14	7.9	84	448	24	118	20	83	199	300	728
11	660	13	7.9	14	674	25	64	17	25	177	282	706
12	198	12	7.5	8.6	364	24	39	16	20	92	61	830
13	41	12	7.2	7.0	148	40	32	48	22	60	45	341
14	59	11	6.8	6.5	58	40	29	34	48	50	73	114
15	722	11	6.5	6.2	40	222	26	37	30	44	78	84
16	77	13	6.5	6.0	33	187	32	118	89	38	40	75
17	40	12	6.5	6.5	28	566	66	62	53	34	35	60
18	31	13	7.9	18	24	231	28	22	33	42	55	56
19	28	12	11	7.9	22	389	22	18	19	40	57	104
20	22	10	27	6.2	22	118	77	17	16	38	64	48
21	20	11	13	138	20	102	79	20	15	78	254	48
22	18	15	9.3	118	18	114	144	116	14	46	113	68
23	18	34	15	67	17	50	95	36	22	46	55	126
24	17	67	14	35	15	41	54	36	69	26	33	131
25	15	27	8.6	16	14	116	262	28	97	22	70	44
26	15	14	8.2	11	14	116	144	80	24	48	136	34
27	13	11	14	9.6	14	62	129	652	28	32	93	29
28	17	19	100	7.9	15	38	125	191	16	20	32	26
29	31	------	15	9.3	14	36	60	53	223	19	29	24
30	17	------	15	12	15	98	35	91	46	95	74	23
31	13	------	11	------	289	------	31	67	------	36	------	44
TOTAL	2,193	646	469.1	673.7	3,755.2	3,595	2,369	2,035	1,461	6,250	3,811	5,563
MEAN	70.7	23.1	15.1	22.5	121	120	76.4	65.6	48.7	202	127	179
MAX	722	122	100	138	674	566	262	652	223	1,340	761	830
MIN	10	10	6.5	5.0	8.2	24	22	16	14	19	29	23
CFSM	8.20	2.68	1.75	2.61	14.0	13.9	8.86	7.61	5.65	23.4	14.7	20.8
IN.	9.47	2.79	2.02	2.91	16.21	15.52	10.22	8.78	6.31	26.98	16.45	24.01
AC-FT	4,350	1,280	930	1,340	7,450	7,130	4,700	4,040	2,900	12,400	7,560	11,030

CAL YR 1970 TOTAL 32,821.0 MEAN 89.9 MAX 1,340 MIN 5.0 CFSM 10.4 IN 141.66 AC-FT 65,100
WTR YR 1970 TOTAL 24,090.4 MEAN 66.0 MAX 1,250 MIN 5.0 CFSM 7.66 IN 103.98 AC-FT 47,780

PEAK DISCHARGE (BASE, 2,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	0600	8.80	3,320	05-11	0230	8.71	3,220	08-27	1700	10.17	5,200	11-09	1630	10.93	6,340
05-03	2230	9.17	3,760	06-17	0800	8.73	3,240	10-09	0100	12.5	9,400	12-08	1400	10.17	5,200

RIO ESPIRITU SANTO BASIN

50064200 Río Grande near El Verde, P.R.

LOCATION.–Lat 18° 20' 43", long 65° 50' 30", on left bank, at bedrock outcrop, 400 ft upstream from bridge on Highway 960, 500 ft southwest of junction of Highways 956 and 960, 1.1 miles west of El Verde, and 2.7 miles south of the municipality of Río Grande.

DRAINAGE AREA.–7.31 sq mi.

PERIOD OF RECORD.--May 1967 to December 1970 (discontinued).

GAGE.–Water-stage recorder. Altitude of gage is 125 ft (from topographic map).

EXTREMES.–Current year: Maximum discharge, 14,000 cfs Nov. 9 (gage height, 10.0 ft), from rating curve extended above 100 cfs on basis of slope-area measurements of peak flow; minimum, 2.7 cfs Apr. 15, 16.
Period of record: Maximum discharge, 14,000 cfs Nov. 9, 1970 (gage height, 10.0 ft), from rating curve extended above 100 cfs on the basis of slope-area measurements of peak flow; minimum, 2.7 cfs Apr. 15, 16, 1970.

REMARKS.--Records good except for period of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	15	13	17	7.9	7.4	36	64	19	47	20	22	24
2	14	29	18	7.8	11	53	49	20	135	21	433	84
3	15	15	15	7.4	94	20	43	17	39	17	350	40
4	14	58	11	7.2	500	17	58	17	24	392	30	89
5	14	18	9.4	7.0	420	20	56	18	22	1,150	23	163
6	13	15	8.2	6.8	17	26	38	17	21	2,890	21	66
7	13	15	8.5	6.8	9.4	38	29	17	20	1,710	26	35
8	12	12	8.5	6.6	1,000	24	21	22	19	1,510	169	498
9	12	12	8.8	6.4	135	16	31	19	49	3,140	1,870	389
10	12	11	8.8	20	250	13	47	16	38	229	500	500
11	951	11	8.8	10	1,700	17	36	14	21	317	200	440
12	163	11	8.4	7.0	400	16	25	14	21	76	80	520
13	31	10	8.1	5.6	100	14	21	35	22	42	48	300
14	35	11	7.9	5.0	41	20	19	21	39	38	75	180
15	1,230	10	7.4	5.5	29	77	18	21	32	33	48	89
16	53	11	7.4	6.2	24	344	20	51	77	30	43	74
17	31	11	7.3	7.0	20	544	46	30	49	27	34	65
18	27	10	7.3	8.5	19	104	21	20	27	29	47	58
19	26	10	9.1	7.0	18	610	17	15	18	29	58	87
20	20	9.9	19	6.5	17	51	47	14	16	27	69	51
21	19	9.9	9.9	22	16	62	44	23	14	41	198	48
22	19	11	8.0	31	16	51	167	354	14	35	100	67
23	17	12	7.8	19	15	31	88	29	20	41	52	90
24	16	16	8.3	10	15	27	35	27	36	23	35	135
25	15	14	7.2	7.0	14	33	67	22	62	20	69	68
26	15	10	6.5	6.4	13	41	88	30	21	142	136	35
27	14	9.4	7.0	6.0	13	29	62	740	20	31	70	31
28	15	12	22	5.8	12	23	97	128	17	20	35	27
29	18	------	11	5.6	12	22	31	39	265	29	28	25
30	15	------	9.0	10	14	60	22	60	31	24	67	24
31	13	------	8.0	------	30	------	20	51	------	19	------	35
TOTAL	2,877	397.2	308.6	275.0	4,981.8	2,439	1,427	1,920	1,236	12,152	4,936	4,337
MEAN	92.8	14.2	9.95	9.17	161	81.3	46.0	61.9	41.2	392	165	140
MAX	1,230	58	22	31	1,700	610	167	740	265	3,140	1,870	520
MIN	12	9.4	6.5	5.0	7.4	13	17	14	14	17	21	24
CFSM	12.7	1.94	1.36	1.25	22.0	11.1	6.29	8.47	5.64	53.6	22.6	19.2
IN.	14.64	2.02	1.57	1.40	25.36	12.41	7.26	9.77	6.29	61.85	25.12	22.07
AC-FT	5,710	788	612	545	9,880	4,840	2,830	3,810	2,450	24,100	9,790	8,600

CAL YR 1970 TOTAL 37,286.6 MEAN 102 MAX 3,140 MIN 5.0 CFSM 14.0 IN 189.77 AC-FT 73,960
WTR YR 1970 TOTAL 23,770.4 MEAN 65.1 MAX 2,260 MIN 5.0 CFSM 8.91 IN 120.98 AC-FT 47,150

PEAK DISCHARGE (BASE, 6,400 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	0700	8.23	9,150	05-11	0230	8.85	10,700	10-06	1000	8.56	9,970	11-09	1600	10.0	14,000
05-03	2300	8.58	10,000	08-27	1630	8.71	10,400	10-09	0030	9.60	10,100	12-08	--	Unknown	Unknown
05-08	1600	Unknown	Unknown												

NOTE.–No gage-height record Nov. 9 to Dec. 31.

RIO MAMEYES BASIN

50065500 Río Mameyes near Sabana, P.R.

LOCATION.--Lat 18° 19' 46", long 65° 45' 04", on left bank, at bridge on Highway 988, 1.4 miles west of Sabana, 2.0 miles downstream from Río de la Mina, and 3.2 miles southeast of Mameyes (Palmer Post Office).

DRAINAGE AREA.--6.88 sq mi.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 275 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 18,000 cfs Oct. 9 (gage height, 12.57 ft), from rating curve extended above 1,800 cfs on the basis of slope-area measurement of peak flow; minimum, 5.1 cfs Apr. 8, 9.

Period of record: Maximum discharge, 18,000 cfs Oct. 9, 1970 (gage height, 12.57 ft), from rating curve extended above 1,800 cfs on basis of slope-area measurement of peak flow; minimum, 5.1 cfs Apr. 8, 9, 1970.

REMARKS.--Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	18	30	26	14	12	241	94	26	121	42	70	37
2	18	62	23	13	46	122	84	36	96	73	243	100
3	17	26	39	11	780	39	114	22	47	64	388	43
4	16	157	17	10	374	32	102	21	33	588	94	39
5	15	33	15	9.8	106	31	110	24	28	609	82	225
6	14	38	14	9.5	47	65	60	20	26	1,160	46	59
7	14	33	13	8.9	31	84	43	20	25	987	83	42
8	13	24	13	8.3	415	66	39	25	35	479	261	657
9	13	23	12	79	121	50	51	48	36	1,900	547	502
10	12	22	12	62	505	46	132	20	87	242	369	625
11	827	21	12	18	721	50	54	18	27	225	747	674
12	232	20	11	14	288	44	34	18	22	109	104	752
13	61	20	11	14	127	80	27	79	21	76	73	249
14	54	21	11	9.8	70	62	24	28	65	62	116	111
15	868	21	10	9.5	52	234	22	97	89	54	99	83
16	97	24	9.9	8.6	42	210	31	95	189	47	61	72
17	56	20	9.6	15	36	496	61	55	86	42	56	64
18	47	23	11	28	32	168	22	24	42	39	134	54
19	41	18	17	8.2	29	389	26	20	31	41	61	55
20	35	16	24	6.9	30	115	89	18	26	42	105	47
21	31	16	14	131	26	97	60	39	23	48	200	49
22	29	29	11	68	23	91	95	89	21	87	180	62
23	28	36	20	24	22	47	58	40	32	61	72	94
24	26	79	14	18	21	39	55	39	127	33	45	95
25	24	43	11	14	20	153	208	33	77	45	40	51
26	23	21	17	10	19	108	151	53	32	112	115	41
27	22	17	23	8.7	79	51	80	855	36	45	95	36
28	32	22	95	7.6	41	37	50	186	30	31	45	34
29	37	------	17	76	23	44	40	63	185	28	40	33
30	25	------	27	19	43	62	33	81	53	43	38	31
31	23	------	14	------	371	------	50	61	------	39	------	53
TOTAL	2,768	915	573.5	733.8	4,552	3,353	2,099	2,253	1,748	7,453	4,609	5,069
MEAN	89.3	32.7	18.5	24.5	147	112	67.7	72.7	58.3	240	154	164
MAX	868	157	95	131	780	496	208	855	189	1,900	747	752
MIN	12	16	9.6	6.9	12	31	22	18	21	28	38	31
CFSM	13.0	4.75	2.69	3.56	21.4	16.3	9.84	10.6	8.48	34.9	22.4	23.8
IN.	14.97	4.95	3.10	3.97	24.62	18.13	11.35	12.18	9.45	40.30	24.92	27.41
AC-FT	5,490	1,810	1,140	1,460	9,030	6,650	4,160	4,470	3,470	14,780	9,140	10,050

CAL YR 1970 TOTAL 36,126.3 MEAN 99.0 MAX 1,900 MIN 6.9 CFSM 14.4 IN 195.36 AC-FT 71,660
WTR YR 1970 TOTAL 25,460.3 MEAN 69.8 MAX 1,230 MIN 6.9 CFSM 10.1 IN 137.68 AC-FT 50,500

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	0400	8.07	4,940	06-17	0600	9.00	6,800	10-04	1400	8.62	6,040	11-11	0445	10.63	11,100
05-03	2100	9.45	7,880	08-27	1600	10.24	9,920	10-09	0145	12.57	18,000	12-11	1730	7.50	4,000

RIO MAMEYES BASIN

50065700 Río Mameyes at Highway 191 at Mameyes, P.R.

LOCATION.--Lat 18° 22' 03", long 65° 46' 14", on left bank, 50 ft downstream from Highway 191 deflection wall, 0.3 mile uupstream from Quebrada Anón, 0.3 mile downstream from Quebrada Tabonuco, and 0.3 mile south of Mameyes (Palmer Post Office).

DRAINAGE AREA.--11.8 sq mi.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 26 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge recorded, 18,400 cfs Oct. 9 (gage height 12.5 ft), from rating curve extended above 200 cfs on basis of slope-area measurement of peak flow; minimum, 10 cfs Apr. 9, 16.

Period of record: Maximum discharge recorded, 22,200 cfs Jan. 26, 1969 (gage height, 13.5 ft), on basis of slope-area measurement of peak flow; minimum, 9.0 cfs Apr. 27, 1967.

REMARKS.--Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	23	36	30	15	15	300	83	41	109	34	54	50
2	26	73	31	15	45	150	77	50	97	49	206	101
3	26	39	40	13	850	50	90	34	59	60	340	56
4	28	139	22	12	450	40	94	33	42	550	76	82
5	27	47	19	11	150	35	96	37	35	551	60	257
6	26	44	18	13	65	80	78	32	33	902	30	75
7	24	47	18	12	30	100	57	28	32	850	69	56
8	25	34	18	11	550	75	51	37	34	500	237	670
9	24	32	18	64	151	60	59	49	35	2,500	653	289
10	22	30	17	64	627	55	101	29	114	300	380	517
11	443	28	18	20	745	50	66	25	35	182	538	563
12	233	27	17	15	304	45	47	25	27	94	104	555
13	70	26	16	13	149	75	40	65	25	63	83	210
14	65	26	16	12	81	70	35	43	46	50	143	113
15	500	26	15	12	62	270	33	69	63	41	101	90
16	118	30	15	12	46	250	40	97	128	33	73	86
17	72	26	14	12	46	500	62	57	72	29	73	78
18	61	28	16	48	40	171	33	25	42	25	119	72
19	54	24	19	11	37	367	29	20	24	26	83	84
20	43	22	30	12	34	127	84	20	20	27	98	65
21	43	22	19	35	32	94	65	21	18	36	171	65
22	40	33	15	255	30	92	94	85	15	103	115	73
23	40	40	22	16	28	66	66	43	23	54	76	95
24	40	74	19	14	25	54	58	43	78	23	62	107
25	38	52	14	13	27	117	264	24	62	40	81	66
26	38	26	19	12	27	102	143	55	25	68	260	57
27	36	22	24	12	65	68	112	923	31	26	93	52
28	46	25	86	10	100	52	81	287	25	13	65	52
29	53	------	20	100	50	49	58	71	136	10	58	49
30	40	------	26	40	35	67	47	78	49	31	54	47
31	36	------	16	------	450	------	44	64	------	25	------	64
TOTAL	2,360	1,078	687	904	5,346	3,631	2,287	2,510	1,534	7,295	4,555	4,796
MEAN	76.1	38.5	22.2	30.1	172	121	73.8	81.0	51.1	235	152	155
MAX	500	139	86	255	850	500	264	923	136	2,500	653	670
MIN	22	22	14	10	15	35	29	20	15	10	30	47
CFSM	6.45	3.26	1.88	2.55	14.6	10.3	6.25	6.87	4.33	19.9	12.9	13.1
IN.	7.44	3.40	2.17	2.85	16.85	11.45	7.21	7.91	4.84	23.00	14.36	15.12
AC-FT	4,680	2,140	1,360	1,790	10,600	7,200	4,540	4,980	3,040	14,470	9,030	9,510

CAL YR 1970 TOTAL 36,983 MEAN 101 MAX 2,500 MIN 10 CFSM 8.56 IN 116.60 AC-FT 73,360
WTR YR 1970 TOTAL 29,210 MEAN 80.0 MAX 1,460 MIN 10 CFSM 6.78 IN 92.09 AC-FT 57,940

PEAK DISCHARGE (BASE, 5,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
08-27	2030	9.98	11,600	10-09	--	12.5	18,400	11-11	0015	9.48	10,400

RIO FAJARDO BASIN

50071000 Río Fajardo near Fajardo, P.R.

LOCATION.--Lat 18° 17' 56", long 65° 41' 42", on left bank, at downstream end of railroad embankment retaining wall on Highway 976, 0.1 mile upstream from field road ford, 0.3 mile downstream from Quebrada Penón, 1.1 miles northeast of Colonia Paraíso, and 3.3 miles southwest of Fajardo.

DRAINAGE AREA.--14.9 sq mi.

PERIOD OF RECORD.--1960-61 (occasional low-flow and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder and horizontal broad-crested concrete control. Altitude of gage is 145 ft (from topographic map). Prior to Apr. 6 at different datum.

AVERAGE DISCHARGE.--9 years (1962-70), 64.6 cfs (58.88 inches per year, 46,800 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,200 cfs Oct. 9 (gage height, 17.5 ft), from rating curve extended above 200 cfs on basis of step-backwater analysis; minimum daily, 10 cfs Apr. 5-8.

Period of record: Maximum discharge, 14,500 cfs Sept. 6, 1960 (gage height, 15.9 ft, from floodmark), on basis of slope-area measurement of peak flow; minimum, 2.2 cfs Apr. 28, 29, 1968.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. Diversion and slight regulation 0.6 mile upstream from station for Fajardo and Ceiba municipal supply. During current year 3,640 acre-ft were diverted, equivalent to a mean discharge of 5.0 cfs at station (diversion figures from P.R. Aqueduct and Sewer Authority).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	35	31	23	12	17	222	120	41	65	69	60	50
2	31	31	23	11	39	148	166	37	71	108	200	120
3	31	39	23	11	357	79	141	35	45	76	450	55
4	31	108	23	11	502	64	92	33	37	572	200	52
5	31	43	23	10	111	62	80	38	40	509	90	220
6	31	39	23	10	65	61	64	35	37	922	60	130
7	31	190	20	10	41	61	60	33	36	1,290	80	110
8	31	60	17	10	188	51	57	47	32	425	200	560
9	31	31	17	35	143	46	56	41	63	2,000	540	500
10	27	31	18	49	133	46	72	33	146	350	450	520
11	290	31	18	27	417	51	63	29	71	200	700	540
12	97	31	17	20	192	43	55	29	61	150	250	600
13	60	31	16	17	124	51	51	42	57	100	100	300
14	60	27	15	17	82	45	48	37	61	80	150	140
15	290	31	17	16	68	167	46	45	69	70	110	100
16	78	56	15	16	60	116	46	51	142	64	80	85
17	65	23	15	23	54	395	56	41	82	62	90	75
18	56	23	16	55	48	139	46	33	69	61	150	68
19	52	23	23	23	44	268	45	29	60	60	110	64
20	47	23	14	19	43	133	74	28	57	62	120	60
21	39	23	15	53	41	133	60	30	54	80	250	62
22	39	23	16	50	37	120	56	66	52	120	150	70
23	39	23	15	26	35	105	63	51	58	85	90	110
24	39	47	14	23	34	99	69	38	78	56	60	100
25	35	39	14	20	33	105	67	31	70	90	85	62
26	31	23	15	18	32	112	83	35	55	130	120	48
27	31	27	28	17	68	98	69	501	58	80	110	44
28	43	23	17	17	63	92	56	99	81	56	70	41
29	43	------	17	30	39	91	46	56	192	50	60	40
30	31	------	14	23	35	97	41	53	81	49	52	48
31	27	------	14	------	150	------	42	56	------	48	------	56
TOTAL	1,802	1,130	555	679	3,295	3,300	2,090	1,753	2,080	8,074	5,237	5,030
MEAN	58.1	40.4	17.9	22.6	106	110	67.4	56.5	69.3	260	175	162
MAX	290	190	28	55	502	395	166	501	192	2,000	700	600
MIN	27	23	14	10	17	43	41	28	32	48	52	40
CFSM	3.90	2.71	1.20	1.52	7.11	7.38	4.52	3.79	4.65	17.5	11.7	10.9
IN.	4.50	2.82	1.39	1.70	8.23	8.24	5.22	4.38	5.19	20.16	13.08	12.56
AC-FT	3,570	2,240	1,100	1,350	6,540	6,550	4,150	3,480	4,130	16,010	10,390	9,980

CAL YR 1970 TOTAL 35,025 MEAN 96.0 MAX 2,000 MIN 10 CFSM 6.44 IN 87.45 AC-FT 69,470
WTR YR 1970 TOTAL 25,089 MEAN 68.7 MAX 1,800 MIN 10 CFSM 4.61 IN 62.64 AC-FT 49,760

PEAK DISCHARGE (BASE, 2,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-03	2400	14.98	6,080	06-17	0745	13.01	3,910	08-27	1800	14.71	5,780	10-09	0200	17.5	9,200

NOTE.--No gage-height record Oct. 9 to Dec. 31.

RIO GUAYANES BASIN

50082800 Río Guayanés near Colonia Laura, P.R.

LOCATION.--Lat 18° 04' 53", long 65° 57' 33", on left bank, downstream from ford, 1,000 ft south of Highway 182, and 5.8 miles west-northwest of Yabucoa.

DRAINAGE AREA.--4.69 sq mi.

PERIOD OF RECORD.--January 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 918 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,250 cfs Oct. 9 (gage height, 10.5 ft, from floodmark and fragmentary gage-height record), from rating curve extended above 100 cfs on basis of slope-area measurements of peak flow; minimum daily, 4.5 cfs Apr. 11-14.
Period of record: Maximum discharge, 6,600 cfs May 21, 1969 (gage height, 11.91 ft, from floodmark), on basis of slope-area measurement; minimum daily, 4.3 cfs Apr. 9, 1969.

REMARKS.--Records poor below 50 cfs and fair above.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.3	7.5	6.0	5.0	5.0	9.9	67	30	123	11	19	19
2	9.4	7.5	6.0	5.0	7.0	14	91	58	48	10	26	19
3	9.5	7.0	5.6	5.0	15	8.7	28	22	18	10	166	18
4	9.6	16	5.6	5.0	26	8.1	51	20	13	78	52	19
5	9.4	8.0	5.6	5.0	16	7.2	29	20	14	1,090	80	16
6	9.5	7.0	5.6	4.7	11	13	25	18	17	1,170	28	15
7	9.4	7.0	5.6	4.7	6.4	15	17	18	17	1,240	25	14
8	9.5	7.0	5.6	4.7	27	11	18	17	17	315	72	13
9	9.9	7.0	5.6	4.7	36	7.8	44	26	38	788	221	139
10	9.4	7.0	5.6	4.7	22	6.5	30	18	15	37	133	607
11	11	6.5	5.6	4.5	57	7.2	20	18	13	48	50	141
12	10	6.5	5.6	4.5	54	7.5	16	18	12	38	33	282
13	10	6.5	5.6	4.5	23	19	15	19	12	38	27	132
14	9.5	6.5	5.6	4.5	14	22	14	17	12	47	34	16
15	15	6.5	5.6	4.7	11	193	13	17	50	43	27	15
16	11	6.3	5.6	4.7	8.2	293	54	29	15	33	23	14
17	9.2	6.3	5.6	4.7	7.3	513	27	17	17	28	21	27
18	9.2	6.3	5.6	13	7.3	81	19	16	17	25	17	43
19	9.2	6.3	5.6	6.0	7.3	50	17	16	15	24	21	40
20	9.2	6.3	5.6	5.0	8.6	42	119	15	14	23	16	38
21	8.5	6.3	5.4	13	9.9	142	55	22	13	23	129	36
22	8.5	6.3	5.4	6.0	8.6	52	151	31	11	22	151	31
23	8.5	6.3	16	5.0	8.2	21	141	27	15	21	31	31
24	8.5	6.3	6.0	5.0	8.0	17	26	35	15	21	17	22
25	8.5	6.3	5.5	5.0	6.8	18	114	19	21	21	22	19
26	8.0	6.0	5.5	5.0	6.0	18	32	26	15	40	24	18
27	8.0	6.0	5.5	5.0	7.3	64	80	442	11	20	22	17
28	8.0	6.0	15	5.0	6.6	13	29	61	11	18	20	16
29	8.0	------	6.5	5.0	7.2	12	28	17	55	17	19	15
30	8.0	------	5.0	5.0	8.7	20	21	15	13	131	19	15
31	8.0	------	5.0	------	13	------	21	16	------	24	------	44
TOTAL	288.7	194.5	193.6	163.6	459.4	1,705.9	1,412	1,140	677	5,454	1,545	1,891
MEAN	9.31	6.95	6.25	5.45	14.8	56.9	45.5	36.8	22.6	176	51.5	61.0
MAX	15	16	16	13	57	513	151	442	123	1,240	221	607
MIN	8.0	6.0	5.0	4.5	5.0	6.5	13	15	11	10	16	13
AC-FT	573	386	384	325	911	3,380	2,800	2,260	1,340	10,820	3,060	3,750

CAL YR 1970 TOTAL 15,124.7 MEAN 41.4 MAX 1,240 MIN 4.5 AC-FT 30,000
WTR YR 1970 TOTAL 9,946.1 MEAN 27.2 MAX 667 MIN 4.5 AC-FT 19,730

RIO GUAYANES BASIN

50083500 Río Guayanés near Yabucoa, P.R.

LOCATION.--Lat 18° 03' 28", long 65° 53' 50", on right bank, 2,000 ft downstream from bridge on Highway 182, and 1.4 miles west-northwest of Yabucoa.

DRAINAGE AREA.--17.2 sq mi.

PERIOD OF RECORD.--February 1962 (low-flow measurement only), February 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 59 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 14,500 cfs Oct. 9 (gage height, 15.15 ft), from rating curve extended above 500 cfs on basis of slope-area measurement of peak flow; minimum daily, 10 cfs Apr. 12.
Period of record: Maximum discharge, 17,000 cfs May 21 (gage height, 15.8 ft), from rating curve extended as explained above, minimum daily, 10 cfs Apr. 12, 1970.

REMARKS.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	38	26	20	13	12	22	122	82	225	54	90	92
2	38	26	20	13	12	30	125	96	104	45	222	91
3	38	26	19	13	26	24	85	57	75	43	398	90
4	38	46	19	12	48	20	96	55	63	139	124	89
5	37	34	19	12	23	20	67	69	57	3,970	132	88
6	37	30	18	11	17	25	65	53	55	5,050	100	87
7	36	29	18	11	16	28	50	50	53	5,600	94	86
8	38	28	18	11	39	24	49	47	52	768	132	85
9	39	28	18	11	62	19	69	77	142	4,160	708	235
10	35	29	17	11	34	18	71	50	73	464	301	2,400
11	37	28	17	11	41	19	55	46	57	234	140	422
12	39	27	16	10	101	20	46	44	54	179	115	877
13	38	26	16	11	44	27	43	46	53	137	108	448
14	36	27	16	12	25	31	40	44	61	117	104	113
15	36	26	15	12	21	378	37	43	84	106	100	84
16	43	26	16	12	19	397	168	64	78	98	98	83
17	34	24	15	13	18	917	70	46	63	96	96	84
18	34	24	15	19	18	107	46	42	53	94	93	81
19	34	23	15	12	17	107	41	40	50	92	91	76
20	34	22	15	11	18	96	166	39	47	90	90	73
21	32	22	15	17	18	213	105	43	44	89	402	72
22	31	22	14	15	17	110	182	65	44	88	283	69
23	31	22	16	12	16	52	254	65	45	87	140	68
24	30	22	16	12	16	43	66	83	46	86	110	69
25	30	22	15	11	16	53	225	47	52	86	100	66
26	30	21	14	11	16	46	101	59	47	129	96	63
27	29	20	14	11	16	73	173	2,120	46	94	95	60
28	29	20	20	11	16	38	86	334	45	89	94	60
29	28	------	15	11	17	34	80	76	86	87	94	60
30	29	------	14	12	19	42	61	65	64	173	92	58
31	27	------	14	------	37	------	58	67	------	100	------	110
TOTAL	1,065	726	509	364	815	3,033	2,902	4,114	2,018	22,644	4,842	6,439
MEAN	34.4	25.9	16.4	12.1	26.3	101	93.6	133	67.3	730	161	208
MAX	43	46	20	19	101	917	254	2,120	225	5,600	708	2,400
MIN	27	20	14	10	12	18	37	39	44	43	90	58
CFSM	2.00	1.51	.95	.70	1.53	5.87	5.44	7.73	3.91	42.4	9.36	12.1
IN.	2.30	1.57	1.10	.79	1.76	6.56	6.28	8.90	4.36	48.98	10.47	13.93
AC-FT	2,110	1,440	1,010	722	1,620	6,020	5,760	8,160	4,000	44,910	9,600	12,770

CAL YR 1970 TOTAL 49,471 MEAN 136 MAX 5,600 MIN 10 CFSM 7.91 IN 107.00 AC-FT 98,130
WTR YR 1970 TOTAL 27,629 MEAN 75.7 MAX 2,630 MIN 10 CFSM 4.40 IN 59.76 AC-FT 54,800

RIO GUAYANES BASIN

50084000 Río Limones near Yabucoa, P.R.

LOCATION.--Lat 18° 04' 35", long 65° 53' 42", on right bank, at bridge on Highway 904, 1.7 miles upstream from Río Guayanés, and 2.0 miles northwest of Yabucoa.

DRAINAGE AREA.--7.89 sq mi.

PERIOD OF RECORD.--February 1962 to April 1966 (annual low-flow measurements only), February 1969 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 62 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,500 cfs Oct. 17 (gage height, 11.9 ft, from floodmark), from rating curve extended above 50 cfs on basis of slope-area measurement of peak flow; minimum daily, 4.3 cfs Apr. 11, 12.
Period of record: Maximum discharge, 8,000 cfs May 21, 1969 (gage height, 14.0 ft, from floodmark), on basis of slope-area measurement of peak flow; minimum daily, 3.7 cfs May 4, 1969.

REMARKS.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	24	16	9.2	6.1	8.1	11	50	38	40	29	73	63
2	26	16	8.5	6.1	7.9	13	29	58	36	27	70	62
3	24	16	8.3	6.3	8.5	11	28	28	28	27	250	62
4	23	17	8.5	5.7	8.5	10	26	26	23	47	90	61
5	24	16	8.5	5.9	8.1	10	23	39	23	717	70	60
6	24	15	7.9	5.9	8.1	11	24	32	22	973	68	59
7	22	14	7.9	5.9	7.5	15	23	24	31	1,080	68	58
8	22	13	8.1	5.9	7.9	10	22	22	23	100	67	58
9	22	13	8.1	5.3	12	10	22	24	38	1,300	350	100
10	23	13	8.1	4.9	11	9.2	26	22	31	150	100	500
11	22	13	8.3	4.3	9.9	9.2	24	20	25	90	80	300
12	22	12	7.9	4.3	28	9.2	22	19	24	80	76	350
13	22	13	7.7	4.9	13	9.5	20	20	24	75	74	70
14	22	13	7.7	4.5	10	9.2	20	18	24	73	72	50
15	22	12	7.1	5.7	8.8	70	19	18	30	71	70	49
16	22	12	6.5	5.5	8.8	105	22	19	33	70	69	48
17	20	12	6.3	8.2	9.0	131	24	20	32	69	69	48
18	20	12	6.5	7.9	9.0	31	19	18	30	68	68	52
19	20	11	6.5	5.9	8.8	56	18	17	29	68	68	48
20	19	10	6.9	6.3	9.0	56	26	17	29	67	68	48
21	19	10	5.9	6.7	9.0	23	25	15	27	67	67	47
22	19	10	5.5	6.1	8.5	20	69	18	26	67	270	46
23	18	9.5	5.5	6.5	8.3	16	89	20	28	66	80	45
24	18	9.2	5.5	5.9	8.5	16	26	20	28	66	72	51
25	18	9.8	5.9	5.5	8.3	17	96	17	29	65	70	43
26	18	9.2	5.9	5.3	7.9	31	42	17	27	110	69	43
27	18	9.5	6.1	5.7	8.5	19	61	447	25	70	68	42
28	18	9.8	7.7	5.9	8.3	16	49	59	24	68	67	41
29	18	------	6.5	7.7	7.9	16	31	26	52	67	66	42
30	17	------	5.5	8.1	11	20	26	21	55	120	64	39
31	17	------	5.3	------	20	------	24	20	------	75	------	42
TOTAL	643	346.0	219.8	178.9	308.1	790.3	1,025	1,179	896	6,022	2,813	2,627
MEAN	20.7	12.4	7.09	5.96	9.94	26.3	33.1	38.0	29.9	194	93.8	84.7
MAX	26	17	9.2	8.2	28	131	96	447	55	1,300	350	500
MIN	17	9.2	5.3	4.3	7.5	9.2	18	15	22	27	64	39
CFSM	2.62	1.57	.90	.76	1.26	3.33	4.20	4.82	3.79	24.6	11.9	10.7
IN.	3.03	1.63	1.04	.84	1.45	3.73	4.83	5.56	4.23	28.40	13.26	12.39
AC-FT	1,280	686	436	355	611	1,570	2,030	2,340	1,780	11,940	5,580	5,210

CAL YR 1970 TOTAL 17,048.1 MEAN 46.7 MAX 1,300 MIN 4.3 CFSM 5.92 IN 80.39 AC-FT 33,810
WTR YR 1970 TOTAL 9,868.1 MEAN 27.0 MAX 800 MIN 4.3 CFSM 3.42 IN 46.53 AC-FT 19,570

NOTE.--No gage-height record Oct. 10 to Dec. 17.

RIO GRANDE DE PATILLAS BASIN

50092000 Río Grande de Patillas near Patillas, P.R.

LOCATION.--Lat 18° 02' 04", long 66° 01' 58", on left bank, at foot bridge upstream from Lago Patillas, 1.2 miles northwest of Patillas Dam, and 2.2 miles northwest of the town of Patillas.

DRAINAGE AREA.--18.3 sq mi.

PERIOD OF RECORD.--February 1959 to October 1965 (annual low-flow and occasional other measurements only), January 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 235 ft (from topographic map).

AVERAGE DISCHARGE.--5 years (1966-70), 65.3 cfs (48.46 inches per year, 47,310 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 11,200 cfs Oct. 7 (gage height, 11.45 ft), on basis of slope-area measurement of peak flow; minimum, 11 cfs Apr. 16.

Period of record: Maximum discharge, 11,200 cfs Oct. 7, 1970 (gage height, 11.45 ft), on basisof slope-area measurement of peak flow; minimum, 4.6 cfs May 13-16, 1968.

REMARKS.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	30	20	18	13	12	13	149	56	274	47	39	37
2	30	20	18	13	12	17	139	78	170	39	50	35
3	29	20	16	13	34	13	89	52	126	34	82	34
4	28	33	16	12	31	16	232	47	92	72	55	33
5	27	24	15	12	18	14	123	47	79	1,620	75	34
6	26	21	15	12	17	16	100	42	66	3,680	85	31
7	25	20	15	12	14	22	70	40	59	4,030	47	29
8	25	21	15	12	71	17	69	37	54	2,370	61	32
9	26	20	15	12	67	14	191	37	113	3,280	229	126
10	24	21	15	12	245	13	104	35	69	934	217	1,080
11	28	20	15	12	292	15	76	34	54	416	75	350
12	34	19	14	12	67	16	58	33	50	252	58	898
13	55	18	14	12	38	31	49	39	55	187	50	752
14	47	19	14	11	23	28	43	36	58	146	43	242
15	32	19	14	11	19	275	39	34	68	126	41	151
16	48	19	14	11	17	1,030	46	41	71	103	38	107
17	31	18	14	16	16	1,110	46	35	65	89	36	87
18	29	18	14	25	15	382	37	31	54	80	33	72
19	27	18	14	14	15	334	34	29	48	74	40	63
20	25	17	15	13	14	170	98	28	42	68	36	56
21	24	17	14	25	14	262	95	45	40	63	51	54
22	24	17	14	23	14	242	278	132	38	61	256	50
23	23	17	17	15	13	91	336	79	53	56	111	47
24	23	17	15	13	13	60	110	89	49	53	61	47
25	22	18	14	12	13	52	117	51	56	54	54	42
26	22	17	13	12	12	76	91	53	44	146	61	40
27	22	16	14	12	12	198	116	1,030	40	90	105	37
28	22	16	24	12	12	57	112	752	36	58	53	36
29	21	------	15	12	13	44	101	187	42	51	44	36
30	21	------	14	13	13	53	73	109	50	47	40	32
31	21	------	14	------	13	------	61	83	------	43	------	56
TOTAL	871	540	468	409	1,179	4,681	3,282	3,421	2,115	18,369	2,226	4,726
MEAN	28.1	19.3	15.1	13.6	38.0	156	106	110	70.5	593	74.2	152
MAX	55	33	24	25	292	1,110	336	1,030	274	4,030	256	1,080
MIN	21	16	13	11	12	13	34	28	36	34	33	29
CFSM	1.58	1.08	.85	.76	2.14	8.76	5.96	6.18	3.96	33.3	4.17	8.54
IN.	1.82	1.13	.98	.85	2.46	9.78	6.86	7.15	4.42	38.39	4.65	9.88
AC-FT	1,730	1,070	928	811	2,340	9,280	6,510	6,790	4,200	36,430	4,420	9,370

CAL YR 1970 TOTAL 42,287 MEAN 116 MAX 4,030 MIN 11 CFSM 6.52 IN 88.38 AC-FT 83,880
WTR YR 1970 TOTAL 24,475 MEAN 67.1 MAX 1,130 MIN 11 CFSM 3.77 IN 51.15 AC-FT 48,550

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-10	1715	7.84	2,860	08-27	1845	10.30	7,750	10-07	0600	11.45	11,200	12-10	0015	9.06	5,020
06-17	0615	8.78	4,460												

RIO GUAMANI BASIN

50095200 Río Guamaní at Guayama, P.R.

LOCATION.--Lat 18° 00' 06", long 66° 06' 48", at bridge on Highway 15, 0.7 mile north of Guayama, and 0.9 mile downstream from Carite Hydroelectric Plant 3.

DRAINAGE AREA.--8.22 sq mi.

PERIOD OF RECORD.--April 1960 (measurement only), April 1961 to December 1963, January 1964 to December 1966 (occasional measurements and annual maximum discharge), March 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 258 ft (from topographic map). Jan. 1964 to Dec. 1966, gage at center pier of bridge at different datum.

EXTREMES.--Current year: Maximum discharge, 6,500 cfs Oct. 6 (gage height, 11 ft), from rating curve extended above 60 cfs on basis of slope-area measurements; no flow many days.
Period of record: Maximum discharge, 13,300 cfs Aug. 27, 1961 (gage height, 15.4 ft, from floodmark), from indirect discharge measurement; no flow many months.

REMARKS.--Records poor. Transbasin diversion from Río de La PLata, for hydroelectric power and irrigation, is diverted from river upstream from gage.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		0	1.4	.67	1.6	2.4	32	24	38	8.4	8.0	14
2		0	1.1	0	5.1	.02	32	25	38	10	11	15
3		.04	0	0	6.6	0	38	24	25	16	14	14
4		3.2	0	0	2.8	0	48	20	13	31	16	13
5		3.4	0	0	0	0	48	12	38	200	12	9.5
6		3.7	0	0	0	0	46	12	37	700	9.5	8.4
7		2.9	0	0	0	0	38	11	26	450	7.6	16
8		2.5	0	0	0	0	34	10	13	350	8.0	18
9		1.2	.25	0	0	.10	40	13	14	300	21	20
10		0	2.4	0	8.2	.59	46	12	9.1	163	25	69
11		0	1.2	0	7.4	0	44	.79	7.2	107	19	32
12		0	0	0	0	0	45	0	5.7	92	18	79
13		0	0	0	0	0	25	.85	6.8	73	12	79
14		0	0	0	0	0	5.7	15	7.2	62	12	44
15		0	0	0	0	5.3	11	19	6.8	56	12	20
16		0	0	0	0	37	18	21	14	49	11	14
17		0	0	0	0	120	20	23	7.6	45	9.5	12
18		0	0	0	0	32	25	18	6.8	43	14	13
19		0	0	.09	0	47	33	19	5.4	38	21	12
20		0	0	.49	0	33	29	18	4.6	36	23	12
21		0	0	.69	.17	35	27	15	4.6	34	32	10
22		0	.14	0	.04	26	33	39	4.3	29	38	9.5
23		0	1.5	0	0	7.9	37	27	3.7	27	29	8.0
24		0	1.0	0	0	19	28	25	3.7	30	26	10
25		0	.78	0	0	27	26	25	7.2	29	23	10
26		.15	1.1	0	0	27	24	26	11	27	21	11
27		0	0	0	0	27	26	164	10	14	27	9.5
28		0	0	0	0	13	27	88	4.6	10	25	9.5
29		------	.97	0	0	73	27	44	6.8	12	23	9.1
30		------	2.8	0	0	30	25	37	8.7	9.5	21	8.0
31		------	1.1	------	1.8	------	24	31	------	8.0	------	6.8
TOTAL	0	17.09	15.74	1.94	33.71	562.31	961.7	818.64	387.8	3,058.9	548.6	615.3
MEAN	0	.61	.51	.065	1.09	18.7	31.0	26.4	12.9	98.7	18.3	19.8
MAX	0	3.7	2.8	.69	8.2	120	48	164	38	700	38	79
MIN	0	0	0	0	0	0	5.7	0	3.7	8.0	7.6	6.8
CFSM	0	.07	.06	.008	.13	2.28	3.77	3.21	1.57	12.0	2.23	2.41
IN.	0	.08	.07	.008	.15	2.55	4.35	3.71	1.76	13.84	2.48	2.78
AC-FT	0	34	31	3.8	67	1,120	1,910	1,620	769	6,070	1,090	1,220

CAL YR 1970 TOTAL 7,021.73 MEAN 19.2 MAX 700 MIN 0 CFSM 2.34 IN 31.78 AC-FT 13,930
WTR YR 1970 TOTAL 3,323.08 MEAN 9.10 MAX 164 MIN 0 CFSM 1.11 IN 15.04 AC-FT 6,590

RIO GUAMANI BASIN

50095500 Río Guamaní near Guayama, P.R.

LOCATION.--Lat 17° 57' 30", long 66° 08' 20", at railroad bridge, 0.5 mile downstream from Highway 3, 1.2 miles upstream from mouth, and 2. 5 miles southwest of Guayama.

DRAINAGE AREA.--12.3 sq mi.

PERIOD OF RECORD.--February 1959 to June 1961 (annual low-flow and occasional other measurements), June 1961 to December 1962, 1963-65 (annual maximum discharge), August 1965 (measurement only), 1967 (annual maximum discharge), March 1969 to December 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 34 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 5,500 cfs Oct. 6 (gage height, 11.0 ft), from rating curve extended above 300 cfs on basis of slope-area measurements; no flow Jan. 27 to June 15.

Period of record: Maximum discharge, 20,000 cfs Aug. 27, 1961 (gage height, 15.2 ft, present gage datum), on basis of slope-area measurement; no flow many days 1969, 1970.

REMARKS.--Records fair to Oct. 9 and poor thereafter. Natural flow of stream is affected by transbasin diversion into basin for power development, diversions for irrigation and municipal water supply, and return flow from irrigated areas.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.9					0	19	31	63	18	5.4	3.5
2	1.8					0	16	34	53	19	5.7	2.7
3	1.6					0	22	32	43	22	5.0	2.4
4	1.4					0	45	24	18	38	4.7	2.4
5	1.4					0	48	13	20	300	4.2	1.9
6	1.2					0	45	7.9	18	900	4.0	2.4
7	.90					0	33	7.0	17	568	3.8	2.4
8	.80					0	28	6.2	16	467	5.9	2.6
9	.70					0	34	6.4	18	423	7.9	2.7
10	.50					0	43	11	15	150	12	24
11	.50					0	42	3.5	14	74	9.4	13
12	2.2					0	41	1.9	12	55	8.5	20
13	4.0					0	20	1.9	11	39	7.6	38
14	.90					0	3.5	2.7	11	29	7.3	20
15	.40					0	2.6	7.9	11	28	6.7	15
16	.30					33	2.7	8.8	19	25	5.7	11
17	.20					190	4.5	9.1	15	18	4.2	9.9
18	.60					66	7.9	7.9	12	15	3.8	8.8
19	.60					88	16	6.4	9.4	14	4.0	7.6
20	.30					57	17	7.9	8.5	12	4.2	7.3
21	.20					55	12	7.3	7.6	17	5.4	6.7
22	.20					38	24	43	5.4	20	8.5	5.9
23	.10					7.9	63	28	8.8	19	5.9	6.4
24	.09					8.8	42	22	7.3	19	4.7	6.7
25	.09					18	44	20	28	18	4.5	6.7
26	.06					16	36	20	22	16	4.0	7.0
27	0					20	41	400	19	11	4.7	6.7
28	0					7.9	43	275	11	7.9	5.0	5.9
29	0	------				4.0	44	104	10	7.0	5.0	5.0
30	0	------				14	34	74	13	6.4	5.0	4.5
31	0	------		------		------	33	63	------	5.9	------	4.0
TOTAL	22.94	0	0	0	0	623.6	906.2	1,286.8	536.0	3,361.2	172.7	263.1
MEAN	.74	0	0	0	0	20.8	29.2	41.5	17.9	108	5.76	8.49
MAX	4.0	0	0	0	0	190	63	400	63	900	12	38
MIN	0	0	0	0	0	0	2.6	1.9	5.4	5.9	3.8	1.9
CFSM	.06	0	0	0	0	1.69	2.37	3.37	1.46	8.78	.47	.69
IN.	.07	0	0	0	0	1.89	2.74	3.89	1.62	10.17	.52	.80
AC-FT	46	0	0	0	0	1,240	1,800	2,550	1,060	6,670	343	522

CAL YR 1970 TOTAL 7,172.54 MEAN 19.7 MAX 900 MIN 0 CFSM 1.60 IN 21.69 AC-FT 14,230
WTR YR 1970 TOTAL 4,797.46 MEAN 13.1 MAX 400 MIN 0 CFSM 1.07 IN 14.51 AC-FT 9,520

RIO COAMO BASIN

50106500 Río Coamo near Coamo, P.R.

LOCATION.--Lat 18° 03' 52", long 66° 22' 10", on right bank retaining wall, 167 ft above bridge on Highway 153, 0.4 mile upstream from Río de la Mina, and 1.5 miles southwest of Coamo.

DRAINAGE AREA.--46.0 sq mi.

PERIOD OF RECORD.--1959-61 (annual low-flow measurements only), September 1960 (indirect flood measurement only), 1965-67 (annual maximum discharge only), January 1967 to December 1968, January to December 1969 (high-water discharges only), January to December, current year (annual maximum discharge and occasional measurements only).

GAGE.--Water-stage recorder. Altitude of gage is 260 ft (from topographic map). Dec. 29, 1964 to Feb. 2, 1967, crest-stage gage at site 190 ft downstream at different datum.

EXTREMES.--Current year: Maximum discharge, 22,000 cfs Oct. 9 (gage height, 21.4 ft, from floodmark), on basis of contracted-opening measurement of peak flow.

Period of record: Maximum discharge, 22,000 cfs Oct. 9, 1970 (gage height, 21.4 ft, from floodmark), on basis of contracted-opening measurement of peak flow; minimum, 1.3 cfs Apr. 10, 11, 1968.

REMARKS.--Records poor. Diversion to Coamo water treatment plant, for municipal supply, upstream from station. Some diurnal fluctuation from return flow from Coamo sewage treatment plant.

REVISIONS.--WRD Puerto Rico 1968: 1960 (M).

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY - WATER RESOURCES DIVISION

RIO COAMO NEAR COAMO, P.R. NUMBER 50106500
DRAINAGE AREA 46.000 SQ MI

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6		+9.6										
7					+4.6							
8												
9							+53		+29	‡22,000		
10												
11												
12												
13								+7.6				
14				+5.4								
15												
16												+81
17												
18												
19		+8.0										
20												
21												
22												
23												
24												
25												
26												
27												
28												
29		------										
30		------										
31		------		------		------			------		------	
TOTAL												
MEAN												
MAX												
MIN												
CFSM												
IN.												
AC-FT												

+ Result of discharge measurement.
‡ From contracted-opening measurement.

RIO JACAGUAS BASIN

50110200 Canal de Aceitunas near Villalba, P.R.

LOCATION.--Lat 18°09'48", long 66°30'17", on left side of Canal de Aceitunas outlet structure, at south end of Toro Negro tunnel, 0.3 mile east of Divisoria, and 2.4 miles north of Villalba.

PERIOD OF RECORD.--January 1966 to current year.

GAGE.--Water-stage recorder and concrete outlet structure. Datum of gage is 2,196 ft above mean sea level (levels by Puerto Rico Water Resources Authority). Resources Authority).

AVERAGE DISCHARGE.--5 years, 32.5 cfs (23,550 acre-ft per year).

EXTREMES.--Period of record: Maximum daily discharge, 150 cfs May 9, 10, 1970; no flow many days 1967, 1970.

REMARKS.--Records fair, except those for period of no gage-height record, which are poor. Transbasin diversion from Río Grande de Manatí basin, for hydroelectric power and irrigation, through Toro Negro tunnel from reservoirs El Guineo, Matrullas, Doña Juana, and Toro Negro, and from ten small stream run-of-river diversions. Some flood runoff in Río Grande de Manatí basin passes over the run-of-river diversion dams and is not diverted through tunnel.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	36	10	21	19	30	61	85	4.4	78	81	25	36
2	32	21	29	19	22	71	80	4.1	78	81	0	36
3	32	22	29	18	22	70	75	3.4	78	81	0	36
4	32	20	30	6.8	44	63	45	3.4	78	81	0	36
5	21	29	30	6.8	37	59	50	4.3	74	62	0	36
6	14	29	33	18	32	48	40	3.2	79	58	0	36
7	22	12	10	16	37	46	40	3.1	78	47	0	37
8	22	12	10	17	110	47	45	2.2	56	46	0	37
9	29	29	29	18	150	44	45	5.1	61	52	15	36
10	26	29	38	13	150	48	40	5.1	52	74	20	43
11	19	37	46	9.5	115	50	25	4.9	47	47	50	47
12	19	36	54	7.2	76	52	15	4.2	50	9.4	50	50
13	94	30	36	12	81	43	20	3.8	51	.10	50	50
14	82	12	9.9	12	101	44	18	3.9	47	0	50	20
15	22	12	9.6	17	101	55	14	3.8	47	0	45	15
16	22	39	14	18	102	76	2.0	7.2	52	0	50	35
17	16	30	31	26	102	92	0	9.5	61	0	50	37
18	16	28	28	18	80	78	0	25	78	0	50	48
19	26	28	20	18	49	81	0	34	79	0	50	48
20	33	28	17	26	48	77	0	34	72	0	50	46
21	33	15	9.6	26	46	86	0	34	75	0	48	46
22	33	10	9.2	27	45	75	2.4	48	60	0	45	45
23	31	15	7.9	27	44	70	3.6	55	63	0	45	45
24	15	29	17	27	44	73	3.3	41	61	0	45	44
25	15	28	15	13	44	75	3.6	35	67	0	43	44
26	30	28	21	18	46	76	3.7	34	66	0	40	43
27	30	28	7.5	27	57	75	3.6	42	65	0	39	43
28	30	0	8.0	27	72	50	3.4	64	53	0	38	47
29	30	------	7.6	39	100	80	3.2	78	49	0	38	45
30	30	------	18	23	84	75	3.3	79	76	0	38	42
31	20	------	13	------	46	------	3.3	79	------	0	------	44
TOTAL	912	646	658.3	569.3	2,117	1,940	672.4	757.6	1,931	719.50	974	1,253
MEAN	29.4	23.1	21.2	19.0	68.3	64.7	21.7	24.4	64.4	23.2	32.5	40.4
MAX	94	39	54	39	150	92	85	79	79	81	50	50
MIN	14	0	7.5	6.8	22	43	0	2.2	47	0	0	15
AC-FT	1,810	1,280	1,310	1,130	4,200	3,850	1,330	1,500	3,830	1,430	1,930	2,490

CAL YR 1970 TOTAL 13,150.10 MEAN 36.0 MAX 150 MIN 0 AC-FT 26,080
WTR YR 1970 TOTAL 13,965.60 MEAN 38.3 MAX 150 MIN 0 AC-FT 27,700

NOTE.--No gage height record Jan. 1 to Mar. 12, Apr. 16 to May 13, June 22 to July 23, Oct. 12 to Dec. 18.

RIO JACAGUAS BASIN

50111200 Río Toa Vaca near Villalba, P.R.

LOCATION.--Lat 18°06'17", long 66°28'52", on right bank, 300 ft downstream from small right bank unnamed tributary, 0.7 mile upstream from Guayabal reservoir, and 1.9 miles southeast of Villalba.

DRAINAGE AREA.--21.4 sq mi.

PERIOD OF RECORD.--January 1966 to September 1970, October 1970 (maximum discharge only; discontinued). Gage-height records collected at same site since August 1962 are contained in files of the Puerto Rico Water Resources Authority.

GAGE.--Water-stage recorder and concrete control with sharp-crested weir. Altitude of gage is 360 ft (from topographic map).

EXTREMES.--Maximum discharge during period January to October, current year, 24,000 cfs Oct. 9 (gage height, unknown; gage was located in reservoir pool behind Toa Vaca Dam), on basis of slope-area measurements of peak flow at bridge on Highway 150, about 1.2 mile upstream at former station 50111000 (drainage area, 19.3 sq mi); minimum, 2.5 cfs many days in April.

Period of record: Maximum discharge, 24,000 cfs Oct. 9, 1970 (gage height, unknown; gage was located in reservoir pool behind Toa Vaca Dam), on basis of slope-area measurements of peak flow at bridge on Highway 150, about 1.2 mile upstream at former station 50111000 (drainage area, 19.3 sq mi); minimum, 0.2 cfs Sept. 21, 1967.

REMARKS.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.8	7.3	6.3	3.3	2.8	68	23	131	116			
2	9.8	7.6	6.0	3.0	2.8	69	21	27	116			
3	9.8	7.6	5.7	2.8	3.1	45	20	17	97			
4	9.4	8.0	5.4	2.9	5.1	35	19	15	95			
5	9.0	8.3	5.4	3.0	3.8	27	34	14	98			
6	8.7	9.0	5.4	3.0	3.5	22	30	13	117			
7	8.3	8.3	5.5	2.9	11	19	25	12	112			
8	8.3	8.3	5.4	2.9	114	16	22	11	142			
9	8.3	8.3	5.4	2.9	281	13	40	16	169			
10	8.1	8.1	5.1	4.1	200	11	30	14				
11	8.1	8.7	4.8	4.1	150	9.0	21	12				
12	8.1	9.4	4.7	3.5	100	8.6	15	11				
13	112	9.0	4.8	3.2	46	8.0	12	9.4				
14	43	7.6	4.8	3.0	33	50	10	9.0				
15	24	7.3	4.7	3.0	24	200	9.4	8.1				
16	14	6.9	4.4	2.8	18	160	30	7.6				
17	10	6.9	4.1	2.8	15	120	22	7.4				
18	9.0	6.8	3.8	2.9	8.0	100	11	7.3				
19	8.3	6.3	3.7	3.0	8.3	74	10	7.1				
20	8.1	6.1	3.6	3.2	47	58	18	7.1				
21	8.0	6.0	3.5	3.1	50	45	10	7.3				
22	11	5.8	3.5	3.0	27	110	23	88				
23	7.4	6.0	3.4	3.0	26	87	12	58				
24	7.3	6.0	3.4	3.0	25	71	9.8	16				
25	7.1	6.1	3.5	2.9	17	61	9.0	8.1				
26	6.9	6.0	3.5	2.9	11	50	12	6.8				
27	6.9	6.0	3.5	2.9	11	40	9.8	456				
28	6.9	6.0	3.4	3.1	26	35	7.4	3,780				
29	7.1	------	3.4	3.5	22	30	7.3	144				
30	7.1	------	3.4	3.0	19	25	7.1	117				
31	7.1	------	3.3	------	42	------	6.6	101	------		------	
TOTAL	416.9	203.7	136.8	92.7	1,352.4	1,666.6	536.4	5,138.2				
MEAN	13.4	7.28	4.41	3.09	43.6	55.6	17.3	166				
MAX	112	9.4	6.3	4.1	281	200	40	3,780				
MIN	6.9	5.8	3.3	2.8	2.8	8.0	6.6	6.8				
CFSM	.63	.34	.21	.14	2.04	2.60	.81	7.76				
IN.	.72	.35	.24	.16	2.35	2.90	.93	8.93				
AC-FT	827	404	271	184	2,680	3,310	1,060	10,190				

RIO JACAGUAS BASIN

50111700 Río Jacaguas near Juana Díaz, P.R.

LOCATION.--Lat 18° 02' 03", long 66° 30' 31", at bridge on Highway 510, 0.2 mile upstream from Quebrada Guanabana, and 1.5 miles south of Juana Díaz.

DRAINAGE AREA.--53.2 sq mi.

PERIOD OF RECORD.--January 1966 to December 1968, January 1969 to October 1970 (maximum discharge only; discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 73 ft (from topographic map).

EXTREMES.--Maximum discharge during period January to October, current year, 44,000 cfs Oct. 9 (gage height, 38.3 ft, from floodmark), from rating curve extended above 270 cfs on basis of slope-area measurements of peak flow.

Period of record: Maximum discharge, 44,000 cfs Oct. 9, 1970 (gage height, 38.3 ft, from floodmark), from rating curve extended as explained above; minimum, no flow many days.

REMARKS.--Records good above 1,500 cfs. Transbasin diversion from Río Grande de Manatí basin through Canal de Aceitunas is diverted at Lago Guayabal to Canal de Juana Díaz for irrigation of about 14,000 acres. A secondary diversion is made above station for irrigation below station. Flow is regulated by Lago Guayabal (capacity 7,600 acre-ft, from reservoir survey of January 1964).

PEAKS ABOVE 1,500 CFS

DATE	TIME	G.H.	DISCHARGE
08-28	0500	14.92	1,660
10-02	1830	14.92	1,660
10-06	0700	16.96	2,970
10-09	0300	38.3	44,000

RIO INABON BASIN

50112500 Río Inabón at Real Abajo, P.R.

LOCATION.--Lat 18° 05' 10", long 66° 33' 46", at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mile upstream from diversion canal, 0.5 mile north of Real Abajo, and 6.1 miles northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 sq mi.

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to June 1970, July to December, current year (occasional measurements only).

GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 410 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 8,450 cfs Oct. 9 (gage height, 26.0 ft, from floodmark), on basis of contracted-opening and flow-over-road measurement of peak flow; minimum daily recorded, 3.1 cfs Apr. 28-30.

Period of record: Maximum discharge, 8,450 cfs Oct. 9, 1970 (gage height, 26.0 ft, from floodmark), on basis of contracted-opening and flow-over-road measurement of peak flow; minimum daily, 1.0 cfs June 5, 1967.

REMARKS.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	15	10	4.8	4.0	3.3	19	16					
2	13	10	5.2	4.0	3.3	18	18					
3	11	10	5.2	4.0	6.8	8.5	17					
4	11	9.0	5.2	4.0	7.7	7.7	17					
5	11	8.0	5.2	4.0	4.4	7.0						
6	11	7.5	5.0	4.0	4.4	5.0						
7	11	7.2	5.0	3.8	19	5.0						
8	11	6.5	5.0	3.8	58	5.0						
9	11	6.3	5.0	3.7	134	5.0						
10	11	6.3	5.0	3.7	205	5.0						
11	25	6.3	4.8	3.7	102	4.8						
12	24	6.3	4.8	3.7	44	4.8						
13	24	6.3	4.8	3.7	31	4.8						
14	46	6.3	4.8	3.7	20	7.0						
15	32	6.5	4.8	3.6	18	65						
16	19	6.3	4.6	3.6	15	162						
17	15	6.0	4.6	3.6	13	140						
18	11	6.0	4.4	3.6	12	148						
19	11	5.8	4.4	3.5	8.2	55						
20	11	5.6	4.4	3.5	8.2	23						
21	10	5.4	4.4	3.5	8.0	24						
22	13	5.8	4.4	3.7	7.7	26						
23	13	5.4	4.4	3.6	7.2	25						
24	12	5.4	4.4	3.6	7.2	25						
25	10	5.2	4.4	3.6	7.2	24						
26	11	5.0	4.4	3.7	7.0	22						
27	13	5.0	4.4	3.6	7.7	17						
28	13	4.8	4.2	3.1	7.0	18						
29	12	------	4.4	3.1	7.0	17						
30	11	------	4.2	3.1	7.0	16						
31	12	------	4.2	------	25	------			------		------	
TOTAL	464	184.2	144.8	109.8	815.3	913.6						
MEAN	15.0	6.58	4.67	3.66	26.3	30.5						
MAX	46	10	5.2	4.0	205	162						
MIN	10	4.8	4.2	3.1	3.3	4.8						
CFSM	1.55	.68	.48	.38	2.71	3.14						
IN.	1.78	.71	.56	.42	3.13	3.50						
AC-FT	920	365	287	218	1,620	1,810						

RIO BUCANA BASIN

50114000 Río Cerrillos near Ponce, P.R.

LOCATION.--Lat 18° 04' 22", long 66° 34' 53", on right bank, 0.2 mile upstream from road ford, 2.3 miles upstream from Quebrada Ausubo, and 4.6 miles northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 sq mi.

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 263.18 ft above mean sea level, datum of 1929.

AVERAGE DISCHARGE.--6 years (1965-70), 41.3 cfs (31.51 inches per year, 29,920 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 9,140 cfs Oct. 9 (gage height, 8.70 ft), from rating curve extended as explained below; minimum daily, 3.8 cfs Apr. 27-29.

Period of record: Maximum discharge, 9,140 cfs Oct. 9, 1970 (gage height, 8.70 ft), from rating curve extended above 150 cfs on basis of slope-area measurements of peak flow; minimum, 2.2 cfs May 28, 1967.

REMARKS.--Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	16	38	8.2	5.8	5.0	41	32	18	282	74	67	47
2	16	29	8.6	5.4	5.0	22	28	18	230	202	110	45
3	16	15	8.6	5.4	7.0	17	26	17	124	116	162	53
4	15	14	8.6	5.4	18	15	29	20	74	74	118	40
5	15	14	8.6	5.4	8.6	14	26	19	221	172	75	38
6	15	14	8.6	5.4	14	13	23	20	202	398	79	37
7	14	12	8.6	5.4	69	13	20	20	116	458	120	37
8	14	11	7.8	5.0	239	12	31	20	79	639	94	40
9	14	10	7.8	5.0	367	12	31	26	72	2,020	80	35
10	13	10	7.8	5.4	180	12	23	18	68	428	162	47
11	13	10	7.8	9.0	116	20	21	112	73	244	112	36
12	17	10	7.8	6.6	101	12	18	62	104	142	84	38
13	23	10	7.8	6.2	64	12	18	29	92	104	142	34
14	19	9.5	8.6	6.6	36	11	17	20	73	86	128	31
15	25	9.0	7.8	6.2	26	23	15	15	85	78	81	29
16	21	9.0	7.4	5.8	22	321	16	16	108	69	67	29
17	18	9.0	7.4	7.8	20	343	30	13	91	68	61	28
18	17	8.2	7.0	8.2	18	116	20	12	79	57	55	27
19	16	8.2	6.6	6.2	16	74	19	11	65	49	51	26
20	15	8.2	6.6	5.0	21	53	23	12	120	99	49	26
21	14	8.2	6.6	6.2	22	76	16	13	210	67	59	24
22	15	7.8	6.6	6.6	15	69	20	25	114	54	100	23
23	17	7.8	7.0	5.4	14	46	20	26	74	48	69	22
24	15	7.8	7.2	5.0	20	45	15	23	63	44	50	22
25	14	8.2	6.2	4.7	17	41	14	14	97	43	132	22
26	14	8.2	6.2	4.4	15	45	13	12	75	112	112	25
27	13	7.8	6.2	4.1	24	39	12	28	67	73	86	22
28	15	8.2	6.6	3.8	15	30	12	602	55	50	65	21
29	15	------	6.6	4.1	14	44	12	71	62	53	56	20
30	15	------	6.2	4.7	16	46	12	34	75	77	50	20
31	14	------	5.8	------	74	------	11	25	------	53	------	44
TOTAL	493	322.1	229.2	170.2	1,598.6	1,637	623	1,371	3,250	6,251	2,676	988
MEAN	15.9	11.5	7.39	5.67	51.6	54.6	20.1	44.2	108	202	89.2	31.9
MAX	25	38	8.6	9.0	367	343	32	602	282	2,020	162	53
MIN	13	7.8	5.8	3.8	5.0	11	11	11	55	43	49	20
CFSM	.89	.65	.42	.32	2.90	3.07	1.13	2.48	6.07	11.3	5.01	1.79
IN.	1.03	.67	.48	.36	3.34	3.42	1.30	2.87	6.79	13.06	5.59	2.06
AC-FT	978	639	455	338	3,170	3,250	1,240	2,720	6,450	12,400	5,310	1,960

CAL YR 1970 TOTAL 19,609.1 MEAN 53.7 MAX 2,020 MIN 3.8 CFSM 3.02 IN 40.98 AC-FT 38,890
WTR YR 1970 TOTAL 17,824.1 MEAN 48.8 MAX 602 MIN 3.8 CFSM 2.74 IN 37.25 AC-FT 35,350

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-09	1645	5.88	2,470	08-28	0600	6.95	4,400	09-21	1530	5.85	2,390	11-13	1730	5.50	1,900
06-16	1130	4.66	1,230	09-01	1900	6.40	3,300	10-09	1530	8.70	9,140	11-25	1730	5.16	1,510
08-11	1745	5.10	1,590	09-05	1545	6.17	2,870	11-10	1420	5.90	2,460				

RIO BUCANA BASIN

50114400 Río Bucaná near Ponce, P.R.

LOCATION.--Lat 18° 02' 18", long 66° 35' 12", on pedestrian bridge at Highway 14, 0.2 mile northeast of junction of Highways 14 and 139, 0.8 mile downstream from Río Bayagán, 1.3 miles downstream from Quebrada Ausubo, and 2.5 miles northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--25.6 sq mi.

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), August 1961 (indirect measurement of peak flow only), 1965 to current year (annual maximum and peaks above base only).

GAGE.--Water-stage recorder. Datum of gage is 100.578 ft above mean sea level, datum of 1929. Prior to Feb. 10, 1965 data collected at Highway 14 bridge 0.4 mile upstream.

EXTREMES.--Current year: Maximum discharge, 12,000 cfs Oct. 9 (gage height, 14.12 ft), from rating curve extended above 200 cfs on basis of slope-area measurements of peak flow.

Period of record: Maximum discharge, 12,000 cfs Oct. 9, 1970 (gage height, 14.12 ft), from rating curve extended above 200 cfs on basis of slope-area measurements of peak flow.

REMARKS.--Record fair. Limited information on flood hydrographs and flow volumes is held in district files. Diversion above station for irrigation. Natural flow of stream is affected by irrigation diversions and return flow from irrigated areas.

PEAK DISCHARGE (BASE, 1,800 CFS, REVISED, 2,800 CFS)

DATE	TIME	G.H.	DISCHARGE
01-13	2030	7.40	2,220
05-08	1700	9.20	3,970
05-09	1700	12.54	8,880
05-10	1330	8.43	3,180
08-28	0430	13.55	11,000
09-01	1945	10.65	5,780
09-05	1520	10.32	5,320
09-06	1745	7.20	2,040
09-11	1900	8.23	2,980
09-12	1900	7.72	2,510
09-15	1430	10.70	5,850
09-20	1600	7.93	2,700
09-21	1630	10.13	5,070
10-02	1430	9.26	4,040
10-06	2400	9.40	4,190
10-08	1600	10.92	6,180
10-09	1530	14.12	12,000
10-10	1530	8.60	3,350
10-26	1630	8.65	3,400
11-10	1400	10.45	5,480
11-13	1700	8.93	3,680
11-25	1730	9.22	3,990

RIO PORTUGUES BASIN

50115000 Río Portugués near Ponce. P.R.

LOCATION.--Lat 18°04'45", long 66°38'03", at right abutment of bridge off Highway 503, 0.2 mile upstream from small unnamed left bank tributary, 4.4 miles upstream from Río Chiquito, and 4.7 miles north of Plaza Degetau in Ponce.

DRAINAGE AREA.--8.82 sq mi.

PERIOD OF RECORD.--February to June 1964 (monthly measurements only), July 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 470 ft (from topographic map). Prior to Dec. 4, 1964, non-recording gage at same site and datum.

AVERAGE DISCHARGE.--6 years (1965-70), 18.4 cfs (28.33 inches per year, 13,330 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 5,790 cfs Oct. 9 (gage height, 9.86 ft), from rating curve extended as explained below; minimum daily, 3.0 cfs many days March, April.

Period of record: Maximum discharge, 5,790 cfs Oct. 9, 1970 (gage height, 9.86 ft), from rating curve extended above 150 cfs on basis of slope-area measurement at gage height 6.90 ft; minimum, 1.3 cfs June 13, 1967.

REMARKS.--Records good. Diversion above station for rural water supply.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.6	61	5.5	4.1	3.2	73	8.5	6.0	103	54	60	25
2	8.6	21	5.5	3.9	3.0	7.8	7.6	5.0	131	72	100	23
3	8.6	12	5.2	3.9	3.4	5.8	12	4.3	68	64	150	22
4	8.6	12	5.2	3.7	6.2	4.5	14	10	40	42	100	21
5	8.2	9.9	4.8	3.9	3.7	4.3	12	7.0	68	107	71	21
6	8.6	9.1	4.8	3.7	3.4	4.3	10	11	61	188	100	19
7	8.2	8.6	4.8	3.2	16	4.1	8.0	8.0	49	253	112	17
8	8.2	7.8	4.8	3.2	45	3.9	12	7.0	34	438	93	18
9	8.2	7.8	4.5	3.2	89	3.7	10	12	30	900	83	18
10	8.2	7.5	4.5	3.9	63	3.9	9.5	8.0	55	200	84	25
11	8.6	7.5	4.3	4.3	88	7.1	8.2	60	32	110	66	18
12	8.2	7.5	4.3	3.2	84	4.8	7.1	25	43	65	54	19
13	39	7.5	4.3	3.2	31	4.1	6.5	16	42	50	47	18
14	26	6.8	4.5	3.2	7.5	3.7	5.8	12	34	45	42	16
15	41	6.8	4.3	3.4	5.2	4.1	5.5	9.5	47	40	38	16
16	33	7.1	4.3	3.4	4.3	247	5.8	9.1	40	38	35	15
17	14	6.8	4.1	4.1	3.9	152	8.6	7.1	33	36	33	15
18	12	6.8	4.1	3.7	3.7	41	5.8	5.8	32	35	31	14
19	11	7.1	4.1	3.4	3.7	19	6.8	5.2	29	33	30	14
20	11	6.2	4.1	3.2	6.2	12	8.0	4.8	28	45	28	13
21	10	5.8	4.1	3.7	4.1	22	5.4	5.5	80	31	32	12
22	18	5.8	3.9	3.7	3.7	18	7.0	24	67	30	57	12
23	14	6.2	4.1	3.2	3.4	10	6.2	17	45	29	43	11
24	11	6.5	4.1	3.2	3.7	9.1	5.2	9.9	35	28	31	11
25	12	6.2	3.9	3.2	3.7	7.2	5.0	7.1	53	27	192	10
26	11	5.2	3.7	3.2	25	6.5	4.9	7.8	48	50	75	11
27	11	5.2	3.4	3.0	22	7.1	4.8	20	45	30	57	10
28	11	5.8	4.1	3.0	5.2	7.1	4.8	255	40	28	36	9.6
29	10	------	3.9	3.0	4.3	11	4.7	37	33	27	30	9.6
30	10	------	3.9	3.2	4.3	9.9	4.6	23	34	35	26	15
31	10	------	3.9	------	73	------	4.5	19	------	28	------	12
TOTAL	415.8	273.5	135.0	104.2	625.8	718.0	228.8	658.1	1,479	3,158	1,936	490.2
MEAN	13.4	9.77	4.35	3.47	20.2	23.9	7.38	21.2	49.3	102	64.5	15.8
MAX	41	61	5.5	4.3	89	247	14	255	131	900	192	25
MIN	8.2	5.2	3.4	3.0	3.0	3.7	4.5	4.3	28	27	26	9.6
CFSM	1.29	.94	.42	.33	1.94	2.30	.71	2.04	4.74	9.81	6.20	1.52
IN.	1.49	.98	.48	.37	2.24	2.57	.82	2.35	5.29	11.30	6.93	1.75
AC-FT	825	542	268	207	1,240	1,420	454	1,310	2,930	6,260	3,840	972

CAL YR 1970 TOTAL 10,222.4 MEAN 28.0 MAX 900 MIN 3.0 CFSM 2.69 IN 36.57 AC-FT 20,280
WTR YR 1970 TOTAL 7,154.4 MEAN 19.6 MAX 255 MIN 3.0 CFSM 1.88 IN 25.59 AC-FT 14,190

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
08-28	0530	5.75	1,100	10-09	0550	9.86	5,790	11-25	1650	8.64	3,960

RIO PORTUGUES BASIN

50115900 Río Portugués at Highway 14 at Ponce, P.R.

LOCATION.--Lat 18°01'09", long 66°36'26", on pier at bridge on Highway 14, 0.6 mile northeast of Plaza Degetau in Ponce, and 1.7 miles downstream from Río Chiquito.

DRAINAGE AREA.--18.6 sq mi.

PERIOD OF RECORD.--1963 (occasional measurements only), 1965 to current year (annual maximum discharge and peaks above base only).

GAGE.--Water-stage recorder. Datum of gage is 43.19 ft above mean sea level, datum of 1929.

EXTREMES.--Current year: Maximum discharge, 5,880 cfs Nov. 10 (gage height, 13.32 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurements of peak flow.

Period of record: Maximum discharge, 5,880 cfs Nov. 10, 1970 (gage height, 13.32 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurements of peak flow.

REMARKS.--Record fair. Limited information on flood hydrographs and flow volumes is held in district files. Diversions above station for rural and municipal water supply, and for irrigation. Natural flow of stream affected by diversions and return flow from irrigated areas.

PEAK DISCHARGE (BASE, 1,300 CFS)

DATE	TIME	G.H.	DISCHARGE
05-08	1600	10.10	2,720
05-09	1630	11.70	4,150
05-10	1300	11.75	4,200
06-16	1200	8.72	1,730
06-17	0230	9.70	2,410
08-28	0500	13.11	5,630
09-01	2030	8.77	1,760
09-15	1430	9.40	2,200
09-21	1630	10.41	2,970
10-02	1500	9.75	2,440
10-07	0030	11.50	3,950
10-08	1500	12.21	4,660
10-09	0100	12.91	5,390
11-02	1800	9.32	2,130
11-03	1800	8.62	1,670
11-04	1600	8.85	1,820
11-10	1530	13.32	5,880
11-25	1730	10.98	3,470

RIO TALLABOA BASIN

50121000 Río Tallaboa at Peñuelas, P.R.

LOCATION.--Lat 18° 03' 02", long 66° 43' 19", on right bank, 350 ft downstream from bridge on Highway 132, 800 ft downstream from Río Guayanés, and 0.6 mile south of Peñuelas.

DRAINAGE AREA.--24.2 sq mi.

PERIOD OF RECORD.--January 1969 to December 1970 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 113.63 ft above mean sea level.

AVERAGE DISCHARGE.--12 years, 46.8 cfs (33,900 acre-ft per year); median of yearly mean discharges, 38.2 cfs (27,680 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 8,480 cfs Oct. 8 (gage height, 8.07 ft), from rating curve extended above 500 cfs on basis of contracted-opening measurement of peak flow; minimum, 1.6 cfs Apr. 25.
Period of record: Maximum discharge, Maximum discharge, 14,600 cfs Aug. 27, 1963 (gage height, 9.50 ft), from rating curve extended above 500 cfs on basis of contracted-opening measurement of peak flow; no flow on days in September 1967 and May 1968.
Approximate gage height of a major flood given by local residents as 15 ft in 1927 (on Highway 132 bridge).

REMARKS.--Records good. Natural flow of stream affected by transbasin diversion, storage reservoirs, power development, and diversions for public water supply and irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14	80	11	5.5	19	81	19	10	118	240	174	57
2	14	25	9.3	4.5	14	30	30	18	194	632	338	55
3	15	20	9.5	4.9	16	25	23	15	98	269	330	58
4	14	15	7.5	5.1	23	26	18	14	50	124	246	41
5	14	15	9.1	5.4	18	26	25	23	54	356	149	38
6	13	13	11	8.0	17	23	28	30	57	538	123	46
7	13	12	11	8.8	78	25	21	83	58	579	330	53
8	13	12	8.8	11	198	19	26	56	48	1,530	314	70
9	14	11	8.9	19	277	19	25	25	31	1,240	269	52
10	14	11	6.5	15	195	16	22	14	64	660	225	70
11	9.2	11	6.4	14	230	24	15	12	35	485	192	38
12	11	11	8.8	11	114	26	18	27	61	358	145	35
13	48	11	9.7	14	45	19	14	37	44	310	115	100
14	46	10	11	11	26	22	13	24	40	225	129	117
15	310	10	10	10	18	17	17	21	239	203	111	43
16	114	10	11	9.8	17	947	13	19	214	194	98	33
17	37	9.9	10	9.6	15	381	25	18	64	255	117	36
18	26	9.7	9.5	9.0	19	237	23	18	47	197	136	35
19	20	11	8.7	9.2	20	139	14	18	41	176	115	28
20	15	19	8.3	9.9	19	89	21	15	39	145	136	22
21	14	8.2	5.5	15	19	84	17	14	45	132	109	34
22	22	7.4	5.4	13	13	79	16	146	81	117	154	30
23	19	7.8	4.6	7.4	13	54	14	84	55	117	105	36
24	15	7.3	3.5	9.7	13	52	13	38	101	147	98	28
25	14	6.9	4.4	11	13	45	13	25	230	132	149	29
26	14	6.8	6.0	23	68	51	20	25	223	166	74	21
27	13	9.5	4.7	15	68	39	24	68	179	123	68	24
28	13	12	5.5	19	23	37	17	319	159	117	76	22
29	13	------	3.8	20	19	38	11	84	120	187	71	30
30	12	------	3.0	21	18	29	15	52	170	192	85	26
31	12	------	3.8	------	236	------	15	42	------	98	------	20
TOTAL	935.2	392.5	236.2	348.8	1,881	2,699	585	1,394	2,959	10,244	4,781	1,327
MEAN	30.2	14.0	7.62	11.6	60.7	90.0	18.9	45.0	98.6	330	159	42.8
MAX	310	80	11	23	277	947	30	319	239	1,530	338	117
MIN	9.2	6.8	3.0	4.5	13	16	11	10	31	98	68	20
CFSM	1.25	.58	.31	.48	2.51	3.72	.78	1.86	4.07	13.6	6.57	1.77
IN.	1.44	.60	.36	.54	2.89	4.15	.90	2.14	4.55	15.75	7.35	2.04
AC-FT	1,850	779	469	692	3,730	5,350	1,160	2,760	5,870	20,320	9,480	2,630

CAL YR 1970 TOTAL 27,782.7 MEAN 76.1 MAX 1,530 MIN 3.0 CFSM 3.14 IN 42.71 AC-FT 55,110
WTR YR 1970 TOTAL 17,151.7 MEAN 47.0 MAX 947 MIN 3.0 CFSM 1.94 IN 26.37 AC-FT 34,020

PEAK DISCHARGE (BASE, 2,800 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
01-15	1830	6.23	3,510	09-26	1700	5.89	2,890	10-02	1445	7.68	7,140	10-08	1430	8.07	8,480
06-16	1100	6.81	4,820												

RIO GUAYANILLA BASIN

50124500 Río Guayanilla at Guayanilla, P.R.

LOCATION.–Lat 18° 02' 01", long 66° 47' 57", at bridge on former Highway 2, 1.1 miles northwest of Guayanilla, and 3.2 miles upstream from mouth.

DRAINAGE AREA.–20.8 sq mi.

PERIOD OF RECORD.–1959-61 (annual low-flow and occasional other measurements only), May 1961 to February 1962 (monthly measurements only), 1962-69 (annual low-flow measurements only), February to December, current year.

GAGE.–Water-stage recorder. Altitude of gage is 70 ft (from topographic map).

EXTREMES.–Maximum discharge during period, February to December, current year, 4,530 cfs Oct. 8 (gage height, 7.46 ft), from rating curve extended above 2,200 cfs; minimum daily, 2.2 cfs Apr. 24.
Period of record: Maximum discharge, 4,530 cfs Oct. 8, 1970 (gage height, 7.46 ft), from rating curve extended as explained above; minimum daily, 2.2 cfs Apr. 24, 1970.

REMARKS.–Records fair.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			5.7	2.6	2.9	29	11	4.8	67	152	101	25
2			5.4	2.6	3.1	27	10	6.1	76	143	88	24
3			5.0	2.6	3.4	13	9.8	5.8	54	76	70	24
4			3.9	2.6	4.8	9.8	13	6.5	32	55	78	23
5			3.9	3.1	4.0	13	12	6.1	27	146	72	23
6			4.3	2.9	3.4	21	11	10	34	345	71	22
7			4.4	2.8	15	11	10	20	33	576	125	22
8			4.0	3.1	147	8.1	9.9	23	23	1,280	203	27
9			4.2	3.6	37	6.7	9.5	9.0	20	690	136	21
10			4.0	3.8	38	6.1	8.8	6.5	23	519	88	21
11			3.9	3.0	94	8.3	8.4	6.2	19	296	129	20
12			3.9	3.0	44	7.6	7.4	24	45	211	72	20
13			4.1	3.0	17	5.0	7.0	35	47	177	60	39
14			3.6	3.0	10	4.5	6.6	21	11	151	53	45
15			3.5	2.9	7.9	4.2	5.8	14	77	138	48	25
16			3.5	2.8	6.6	917	5.6	10	33	126	44	20
17			3.8	2.8	6.0	132	7.5	9.8	16	127	40	18
18			3.6	2.8	5.1	77	6.6	8.8	10	118	39	17
19			3.4	2.8	4.6	53	6.2	8.2	10	142	42	17
20			3.4	3.0	4.9	38	6.7	7.4	11	110	36	17
21			3.4	3.6	6.8	34	7.3	7.0	22	94	35	16
22			3.4	3.4	4.7	28	8.6	60	49	86	46	16
23			3.1	3.0	4.4	24	7.7	37	24	80	50	16
24		6.8	2.9	2.2	4.4	31	6.5	22	62	76	57	15
25		6.4	2.7	2.7	4.6	28	6.4	11	182	96	34	15
26		5.8	2.9	6.0	4.8	22	5.6	9.0	51	114	31	15
27		5.8	3.1	4.0	12	19	4.8	15	71	89	28	14
28		5.7	2.6	4.5	5.4	17	5.7	147	41	66	27	14
29		------	2.6	5.0	4.4	14	5.5	44	25	73	27	14
30		------	3.1	4.4	4.1	13	5.6	26	47	80	26	13
31		------	2.6	------	60	------	5.2	68	------	77	------	13
TOTAL			113.9	97.6	574.3	1,621.3	241.7	688.2	1,242	6,509	1,956	631
MEAN			3.67	3.25	18.5	54.0	7.80	22.2	41.4	210	65.2	20.4
MAX			5.7	6.0	147	917	13	147	182	1,280	203	45
MIN			2.6	2.2	2.9	4.2	4.8	4.8	10	55	26	13
AC-FT			226	194	1,140	3,220	479	1,370	2,460	12,910	3,880	1,250

RIO GRANDE DE AÑASCO BASIN

50144000 Río Grande de Añasco near San Sebastián, P.R.

LOCATION.--Lat 18° 17' 00", long 67° 03' 02", on right bank, 400 ft upstream from bridge on Highway 108, 0.3 mile downstream from Quebrada La Zumbadura, 4.4 miles northwest of Las Marías, and 5.4 miles southwest of San Sebastián.

DRAINAGE AREA.--94.3 sq mi (does not include 36.2 sq mi, which contributes only during high floods, and 3.5 sq mi, which contributes only part of its storm runoff).

PERIOD OF RECORD.--February 1960 (measurement only), March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft above mean sea level (P.R. Department of Public Works bench mark).

AVERAGE DISCHARGE.--7 years (1964-70), 280 cfs (40.32 inches per year, 202,900 acre-ft per year).

EXTREMES.--Current year: Maximum discharge, 7,440 cfs Sept. 24 (gage height, 11.85 ft), from rating curve extended above 4,000 cfs on basis of slope-area measurement; minimum, 62 cfs Apr. 25, 26.

Period of record: Maximum discharge, 15,500 cfs Sept. 27, 1963 (gage height, 17.03 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurement; minimum, 31 cfs Apr. 19, 20, 1965.

REMARKS.--Records good except those for period of no gage-height record, which are poor. Transbasin diversion, to Río Yauco basin for hydroelectric power and irrigation, of flow above Lagos Guayo, Yahuecas, and Prieto (combined usable storage 17,300 acre-ft), except spills during large floods. Limited storm runoff is contributed to basin by 3.5 sq mi above Río Toro diversion dam.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	177	156	124	76	139	1,220	145	114	476	849	600	295
2	177	205	115	75	87	879	140	129	290	919	500	304
3	174	162	113	75	77	369	150	115	229	924	450	302
4	169	153	107	74	76	252	160	155	167	772	487	294
5	167	208	103	74	89	199	170	118	398	657	462	288
6	164	173	100	74	522	191	160	163	579	1,090	650	280
7	163	167	100	71	456	164	150	121	484	2,000	811	288
8	166	153	100	69	298	164	170	194	447	1,950	584	300
9	164	146	100	69	513	143	200	176	284	2,740	513	282
10	172	148	97	73	436	188	170	310	237	1,880	694	371
11	215	142	95	74	453	183	140	394	328	976	505	308
12	197	157	150	73	455	150	130	233	423	738	474	373
13	176	135	111	72	238	160	120	162	375	617	437	319
14	584	131	102	71	161	350	115	152	361	547	792	284
15	299	130	98	70	132	1,000	110	132	326	503	599	266
16	229	127	96	70	115	500	120	119	538	478	439	260
17	193	125	94	81	107	400	130	133	744	535	402	258
18	178	124	92	77	100	310	150	140	502	524	381	253
19	169	123	90	69	100	280	120	121	384	425	377	239
20	165	120	90	67	104	250	150	114	687	870	348	223
21	160	117	89	68	110	220	250	110	551	863	377	201
22	235	116	86	78	101	210	190	115	432	629	487	200
23	421	116	86	69	93	200	160	182	383	464	456	195
24	423	117	84	65	88	300	130	190	1,300	438	382	192
25	276	132	84	63	86	500	110	125	1,140	594	375	220
26	207	120	83	102	84	300	130	116	709	564	369	203
27	185	115	80	74	98	200	125	243	830	418	395	188
28	169	113	79	65	148	170	120	383	871	371	346	303
29	167	------	79	107	205	160	110	259	583	408	325	318
30	161	------	79	231	404	150	107	166	1,210	663	307	231
31	159	------	78	------	663	------	105	140	------	690	------	191
TOTAL	6,661	3,931	2,984	2,376	6,738	9,762	4,437	5,324	16,268	26,096	14,324	8,229
MEAN	215	140	96.3	79.2	217	325	143	172	542	842	477	265
MAX	584	208	150	231	663	1,220	250	394	1,300	2,740	811	373
MIN	159	113	78	63	76	143	105	110	167	371	307	188
CFSM	2.28	1.48	1.02	.84	2.30	3.45	1.52	1.82	5.75	8.93	5.06	2.81
IN.	2.63	1.55	1.18	.94	2.66	3.85	1.75	2.10	6.42	10.29	5.65	3.25
AC-FT	13,210	7,800	5,920	4,710	13,360	19,360	8,800	10,560	32,270	51,760	28,410	16,320

CAL YR 1970 TOTAL 107,130 MEAN 294 MAX 2,740 MIN 63 CFSM 3.12 IN 42.26 AC-FT 212,500
WTR YR 1970 TOTAL 104,728 MEAN 287 MAX 2,560 MIN 63 CFSM 3.04 IN 41.31 AC-FT 207,700

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
09-24	2215	11.85	7,440	09-30	1800	11.47	6,960

NOTE.--No gage-height record June 13 to July 29.

RIO CULEBRINAS BASIN

50147800 Río Culebrinas at Highway 404 near Moca, P.R.

LOCATION.--Lat 18° 21' 42", long 67° 05' 33", on right bank, at bridge on Highway 404, 0.3 mile downstream from Quebrada Yagruma, and 2.8 miles southeast of Moca.

DRAINAGE AREA.--71.2 sq mi.

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 45 ft (from topographic map).

EXTREMES.--Current year: Maximum discharge, 20,300 cfs May 7 (gage height, 26.05 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurements of peak flow; minimum 19 cfs Apr. 29.

Period of record: Maximum discharge, 30,000 cfs Nov. 27, 1968 (gage height, 28.7 ft, from floodmark), from rating curve extended above 2,600 cfs on basis of slope-area measurement at gage height 26.05 ft and contracted-opening measurement of peak flow; minimum, 19 cfs Apr. 29, 1970.

REMARKS.--Records fair except those for periods of no gage-height record, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	74	105	50	29	105	503	105	57	2,140	808	328	220
2	74	80	49	27	35	810	98	65	552	548	358	220
3	74	75	49	26	32	630	106	59	265	389	295	210
4	75	72	48	25	35	279	127	70	189	366	690	210
5	72	75	46	25	69	161	120	90	297	350	444	210
6	72	76	44	26	65	303	105	85	249	800	2,040	205
7	68	74	44	25	984	229	100	80	635	1,500	1,130	210
8	68	71	44	24	789	144	125	100	696	1,800	440	220
9	80	68	44	24	178	120	159	150	738	2,800	1,550	200
10	81	69	46	24	131	870	106	170	370	1,200	1,200	250
11	159	66	45	24	100	578	93	350	413	369	380	220
12	101	82	44	24	106	345	85	200	443	317	320	250
13	97	71	45	25	81	463	80	133	390	281	400	230
14	852	65	41	25	68	999	76	124	342	255	550	200
15	303	64	40	25	59	665	72	108	273	239	310	190
16	195	64	38	25	53	370	84	98	325	223	275	185
17	125	64	37	25	50	279	106	95	283	259	244	180
18	112	62	37	25	49	229	78	124	289	247	224	175
19	98	61	37	26	46	197	71	106	245	195	210	170
20	95	59	37	26	44	168	98	89	299	378	200	170
21	98	59	37	26	41	157	186	84	280	618	225	165
22	100	55	35	29	39	174	144	85	270	344	275	160
23	322	53	35	29	35	140	93	151	250	258	260	155
24	176	54	35	27	35	124	81	147	240	210	250	150
25	98	54	34	26	34	427	76	100	250	209	230	180
26	89	53	33	22	29	275	93	89	270	178	250	165
27	85	51	32	21	90	155	78	115	300	170	270	160
28	82	51	31	20	309	129	68	253	450	163	250	220
29	76	------	29	20	460	113	65	133	1,100	164	230	230
30	76	------	30	68	936	110	59	100	1,210	175	220	170
31	100	------	29	------	342	------	58	92	------	177	------	140
TOTAL	4,177	1,853	1,225	793	5,429	10,146	2,995	3,702	14,053	15,990	14,048	6,020
MEAN	135	66.2	39.5	26.4	175	338	96.6	119	468	516	468	194
MAX	852	105	50	68	984	999	186	350	2,140	2,800	2,040	250
MIN	68	51	29	20	29	110	58	57	189	163	200	140
CFSM	1.90	.93	.55	.37	2.46	4.75	1.36	1.67	6.57	7.25	6.57	2.72
IN.	2.18	.97	.64	.41	2.84	5.30	1.56	1.93	7.34	8.35	7.34	3.15
AC-FT	8,290	3,680	2,430	1,570	10,770	20,120	5,940	7,340	27,870	31,720	27,860	11,940

CAL YR 1970 TOTAL 80,431 MEAN 220 MAX 2,800 MIN 20 CFSM 3.09 IN 42.02 AC-FT 159,500
WTR YR 1970 TOTAL 89,522 MEAN 245 MAX 4,990 MIN 20 CFSM 3.44 IN 46.77 AC-FT 177,600

PEAK DISCHARGE (BASE, 11,300 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
05-07	2230	26.05	20,300	11-06	2200	22.95	11,900

NOTE.--No gage-height record Feb. 9 to Mar. 9, Nov. 19 to Dec. 31.

DISCHARGE AT PARTIAL-RECORD STATIONS

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during 1970

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Cibuco basin					
50038300	Río Corozal at Corozal, P.R.	Lat 18°20'39", long 66°19'16", at bridge on Hwy 159, 0.3 mile northwest of Corozal.	9.12	1967-70	05-08-70	12.76 [c]1.8	+
50038900	Río Indio at Vega Baja, P.R.	Lat 18°26'10", long 66°22'53", at water treatment plant on Hwy 674, 0.8 mile southeast of Vega Baja, and 1.8 miles upstream from Río Cibuco.	Indeterminate	1962-70	10-09-70	17.85	+
		Río de la Plata basin					
50043200	Río Usabón nr Barranquitas, P.R.	Lat 18°09'43", long 66°18'26", 30 ft upstream fr dam, 0.2 mile downstream fr bridge on Hwy 162, and 1.8 miles south of Barranquitas.	9.15	1967-70	10-09-70	15.2	5,600
50043400	Río Aibonito tributary nr Aibonito, P.R.	Lat 18°07'11", long 66°16'27", at culvert on Hwy 717, 1.6 miles south of Aibonito, and 3.1 miles upstream fr Río Aibonito.	1.13	1967-70	10-09-70	32.3 [c]15.1	1,900
50043600	Río Hondo nr Comerío, P.R.	Lat 18°12'38", long 66°14'37", at bridge on Hwy 156, 0.4 mile upstream fr Río de la Plata, and 1.2 miles southwest of Comerío.	10.5	1967-70	10-09-70	‡	11,000
50044600	Río Guadiana nr Naranjito, P.R.	Lat 18°16'41", long 66°15'39", at culvert at Km 1.95, Route 814, 1.5 miles southwest of Naranjito.	1.73	1970	10-09-70	13.3	2,500
50044650	Quebrada del Toro nr Naranjito, P.R.	Lat 18°17'12", long 66°15'40", at culvert on Hwy 814 at its intersection with Hwy 152, 0.4 mile upstream fr Río Guadiana, and 1.5 miles southwest of Naranjito.	0.54	1967-70	10-09-70	15.4 [c]4.6	900
50044800	Quebrada Anones nr Naranjito, P.R.	Lat 18°17'59", long 66°14'09", at bridge on Hwy 164, 0.2 mile upstream fr Río Guadiana, and 0.7 mile east of Naranjito.	2.32	1967-70	10-09-70	22.2	3,100
		Río de Bayamón basin					
50048000	Río de Bayamón at Hwy 2 at Bayamón, P.R.	Lat 18°23'53", long 66°08'25", at bridge on Hwy 2, 1.0 mile east of Bayamón.	71.9	1945, 1961-70	10-09-70	‡	58,000

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations during 1970--Continued

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Grande de Loíza basin					
50052600	Río Grande de Loíza tributary at San Lorenzo, P.R.	Lat 18°12'07", long 65°58'48", at bridge on Hwy 183, 0.1 mile upstream fr Río Grande de Loíza, and 0.1 mile northwest of San Lorenzo.	0.27	1966-70	10-09-70	13.18	+
50054000	Quebrada de las Quebradillas nr Caguas, P.R.	Lat 18°11'36", long 66°03'48", at dam at water treatment plant, 3.5 miles southwest of Caguas.	6.25	1960, 1967-70	10-09-70	104.7	5,800
50056000	Río Valenciano nr Las Piedras, P.R.	Lat 18°10'37", long 65°54'21", at bridge on Hwy 183 (Km 17.5), 3.2 miles west of Las Piedras.	6.85	1967-70	10-08-70	18.6	9,100
50056200	Quebrada de los Muertos tributary nr Las Piedras, P.R.	Lat 18°10'36", long 65°53'07", at bridge on Hwy 183, 0.2 mile upstream fr Quebrada de los Muertos, and 1.4 miles west of Las Piedras.	0.77	1967-70	10-09-70	19.6	800
50058300	Quebrada Arena nr Caguas, P.R.	Lat 18°17'58", long 66°02'56", at culvert at Km 0.5, Route 175, 4.4 miles north of Caguas.	3.77	1967-70	10-09-70	16.8	2,600
		Río Espíritu Santo basin					
50064700	Quebrada Boneta at Río Grande, P.R.	Lat 18°22'42", long 65°49'48", at bridge on Hwy 3, 0.3 mile south of the plaza in Río Grande, and 0.4 mile upstream fr Río Grande.	0.77	1965, 1967-70	05-08-70	17.97	11,000
		Río Sabana basin					
50068000	Río Sabana at Luquillo, P.R.	Lat 18°22'15", long 65°42'51", at Hwy 3 bridge, 0.4 mile southeast of Luquillo.	7.05	1966-70	10-09-70	95.6	13,800
		Río Daguao basin					
50073200	Río Daguao at Daguao, P.R.	Lat 18°13'42", long 65°40'39", at railroad bridge, 0.1 mile downstream fr bridge on Hwy 3, 0.3 mile east of Daguao, and 2.8 miles upstream fr mouth.	2.26	1965, 1967-70	08-27-70	14.3 [c]6.2	[e]8,000
		Quebrada Palma basin					
50073400	Quebrada Palma nr Daguao, P.R.	Lat 18°13'16", long 65°41'30", at bridge on Hwy 3, 0.8 mile southwest of Daguao, and 1.7 miles upstream fr mouth.	4.84	1965-70	08-27-70	13.7 [c]3.7	2,400
		Río Santiago basin					
50074000	Río Santiago at Naguabo, P.R.	Lat 18°12'57", long 65°43'51", at bridge on Hwy 31, 0.3 mile northeast of Naguabo, 0.4 mile downstream fr Quebrada Grande, and 2.2 miles upstream fr mouth.	4.99	1965-70	08-27-70	[a]18	[e]14,000

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations during 1970--Continued

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Blanco basin					
50075500	Río Blanco at Florida, P.R.	Lat 18°14'27", long 65°47'06", at bridge on Hwy 191, 0.2 mile northwest of Florida, 1.4 miles upstream fr Quebrada Peña Pobre, and 3.7 miles northwest of Naguabo.	11.0	1965-70	10-09-70	79.3	14,900
50077400	Río Blanco at Colonia La Fé, P.R.	Lat 18°12'48", long 65°46'22", 50ft upstream fr unnamed tributary which crosses Hwy 31 at culvert 300 ft north of station, 0.7 mile west of Colonia La Fé, 1.2 miles downstream fr Quebrada Peña Pobre, and 2.4 miles west of Naguabo.	18.8	1965-70	08-27-70	31.6	+
		Río Humacao basin					
50081000	Río Humacao at Las Piedras, P.R.	Lat 18°10'27", long 65°52'11", at bridge on Hwy 921, 0.6 mile southeast of junction with Hwy 30, Municipio de Las Piedras.	6.65	1963-70	10-09-70	21.34 [c] 12.1	3,500
50081800	Río Humacao at Hwy 30 at Humacao, P.R.	Lat 18°09'45", long 65°50'23", at bridge on Río Humacao tributary at junction of Hwy 30 and 922, 0.8 mile downstream fr Quebrada Obispo, and 1.1 miles northwest of Humacao.	10.0	1963-70	10-09-70	30.27	+
50082000	Río Humacao at Humacao, P.R.	Lat 18°08'49", long 65°49'37", at bridge on Hwy 3, 300 ft downstream fr Quebrada Mariana, and 0.4 mile south of Humacao.	17.3	1964-70	10-09-70	54.91	13,000
50082200	Río Humacao at La Suíza, P.R.	Lat 18°08'53", long 65°48'57", at abandoned railroad bridge, 0.7 mile west of La Suíza, 0.8 mile east of Humacao, and 1.1 miles downstream fr Quebrada Mariana.	19.9	1965-70	10-09-70	26.94	+
		Río Guayanés basin					
50086500	Río Guayanés at Playa de Guayanés, P.R.	Lat 18°03'45", long 65°49'42", on abandoned railroad bridge, 0.2 mile upstream from mouth, and 0.4 mile west of Playa de Guayanés.	39.3	1965-70	10-09-70	13.17	+
50087200	Caño Santiago nr Central Roig, P.R.	Lat 18°03'18", long 65°50'59", at service road and railroad bridge, 1.8 miles east of Central Roig, and 2.0 miles east of Yabucoa.	6.04	1965-70	10-09-70	14.55	+
		Río Maunabo basin					
50091000	Río Maunabo at Maunabo, P.R.	Lat 18°00'24", long 65°54'19", at bridge on Hwy 3, 0.4 mile southwest of Maunabo, and 1.3 miles upstream fr mouth.	12.4	1965-70	10-09-70	18.70 [c] 5.5	7,200
50091200	Río Maunabo nr Maunabo, P.R.	Lat 17°59'56", long 65°54'09", at field road ford, 0.6 mile upstream fr mouth, and 0.7 mile south of Maunabo.	12.7	1965-70	10-09-70	[b] 16.00	7,200

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations during 1970--Continued

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Jacaboa basin					
50091400	Río Jacaboa nr Lamboglia, P.R.	Lat 17°09'24", long 65°58'03", at bridge on farm service road, 100 ft downstream fr Quebrada Higuera, 1.3 miles upstream fr mouth, 1.3 miles northeast of Lamboglia, and 4.6 miles west of Maunabo.	4.13	1965-70	10-09-70	16.2	3,400
		Río Chico basin					
50091700	Río Chico at Patillas, P.R.	Lat 17°59'37", long 66°00'29", 70 ft downstream fr bridge on farm service road, 0.1 mile below confluence of Río de Apeadero and Quebrada Mamey, 0.9 mile upstream fr mouth, and 1.1 mile southeast of Patillas.	6.32	1965-70	10-09-70	13.89	14,000
50091800	Río Chico at Providencia, P.R.	Lat 17°59'16", long 66°00'18", at abandoned railroad bridge at Providencia, 0.5 mile upstream fr mouth, and 1.5 miles southeast of Patillas.	6.97	1965-70	10-09-70	17.78	+
		Río Patillas basin					
50094200	Río Grande de Patillas at Patillas, P.R.	Lat 18°00'15", long 66°01'27", at bridge on Hwy 3, 0.7 mile west of Patillas, and 1.9 miles upstream fr mouth.	27.9	1966-70	10-07-70	15.5	9,000
50094300	Río Patillas at Providencia, P.R.	Lat 17°59'20", long 66°00'47", at abandoned railroad bridge, 0.5 mile above mouth, and 0.6 mile west of Providencia.	29.0	1965-70	10-07-70	12.03	+
		Río Nigua basin					
50094400	Río Nigua at Pitahaya, P.R.	Lat 17°59'39", long 66°03'47", 0.3 mile upstream fr Canal de Patillas, 0.6 mile west of Pitahaya, 2.7 miles upstream fr mouth, and 3.4 miles east of Guayama.	5.86	1965-70	10-09-70	15.4	5,800
50094450	Río Nigua at Central Lafayette, P.R.	Lat 17°58'59", long 66°03'46", on left bank, 0.3 mile northwest of Central Lafayette, 1.8 miles upstream fr mouth, and 3.4 miles east of Guayama.	7.65	1965-70	08-27-70	12.34 [c]6.6	+
		Río Guamaní basin					
50095300	Río Guamaní at Lago Melania, P.R.	Lat 17°58'47", long 66°07'37", on right bank, 150 ft upstream fr road ford, 1.0 mile east of Lago Melania, 1.0 mile southwest of Guayama, and 3.2 miles upstream fr mouth.	11.0	1965-70	10-06-70	[a]5.2 [c]8.0	+

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations during 1970--Continued

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Seco basin					
50096800	Río Seco at Hacienda Juana, P.R.	Lat 17°59'12", long 66°10'00", on right bank, 50 ft upstream fr field road ford at Hacienda Juana, 0.6 mile downstream fr Canal de Guamaní Oeste, and 2.0 miles north of Jobos.	7.06	1965-70	10-07-70	17.81 [c]6.8	[e]1,800
		Río Salinas basin					
50100700	Río Majada at Rabo del Buey, P.R.	Lat 18°02'17", long 66°14'27", at bridge on Hwy 1, at Rabo del Buey 200 ft upstream fr Río Lapa, and 5.6 miles northeast of Salinas.	22.2	1965-70	10-09-70	31.92 [c]20.9	10,000
50101200	Río Majada at Sabana Llana, P.R.	Lat 18°02'02", long 66°14'42", on left bank retaining wall, 0.2 mile downstream fr Río Lapa, 0.6 mile northeast of Sabana Llana, and 5.2 miles northeast of Salinas.	34.5	1965-70	10-09-70	14.72	+
		Río Coamo basin					
50105600	Río Cuyón nr Coamo, P.R.	Lat 18°05'25", long 66°18'50", at bridge on Hwy 14, 0.7 mile upstream fr Quebrada de los Panes, and 2.9 miles east of Coamo.	16.5	1967-70	10-09-70	15.0	8,900
50106800	Río Coamo at Flores, P.R.	Lat 18°02'57", long 66°22'06", on right bank, 0.1 mile downstream fr unnamed tributary, 0.3 mile west of Flores, 1.2 miles downstream fr Río de la Mina, and 2.4 miles south of Coamo.	57.0	1965-70	10-09-70	[a]23.3	+
		Río Descalabrado basin					
50108000	Río Descalabrado nr Los Llanos, P.R.	Lat 18°03'07", long 66°25'34", at bridge on Hwy 14, 1.4 miles east of Los Llanos.	12.9	1965-70	10-09-70	21.6	10,300
50108200	Río Descalabrado at Las Ollas, P.R.	Lat 18°02'10", long 66°25'36", on right bank, 300 ft upstream fr bridge on Hwy 536 at Las Ollas, 1.9 miles upstream fr Juana Díaz Canal, and 5.4 miles east of Juana Díaz.	13.9	1965-70	10-08-70	11.16 [c]1.8	[e]4,000
		Río Inabón basin					
50112600	Río Inabón at Coto Laurel, P.R.	Lat 18°03'08", long 66°32'44", at bridge on Hwy 14, 0.2 mile east of Coto Laurel, 0.9 mile upstream fr Río Guayo, and 2.6 miles west of Juana Díaz.	13.0	1965-70	10-09-70	12.43 [c]4.3	8,700
50113100	Río Guayo nr Coto Laurel, P.R.	Lat 18°03'18", long 66°31'59", at bridge on Hwy 14, 1.1 miles upstream fr Río Inabón, 1.1 miles east of Coto Laurel, and 1.8 miles west of Juana Díaz.	11.8	1965-70	10-09-70	17.45 [c]7.1	21,000

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS

Annual maximum discharge at crest-stage partial-record stations during 1970--Continued

Station number	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum Date	Gage height (ft)	Discharge (cfs)
		Río Bucaná basin					
50113700	Quebrada Jamiel nr Ponce, P.R.	Lat 18°08'51", long 66°36'42", at culvert on Hwy 139, 800 ft upstream fr Río Blanco, 0.2 mile upstream fr confluence of Ríos Blanco and Prieto, and 9.2 miles north of Plaza Degetau in Ponce.	0.54	1967-70	10-09-70	22.75 [c]10.4	1,100
		Río Guanajibo basin					
50135500	Quebrada Mendoza at Cabo Rojo, P.R.	Lat 18°05'28", long 67°08'56", on right bank, 400 ft downstream fr bridge on Hwy 102, 0.2 mile northwest of Cabo Rojo, and 1.6 miles upstream fr Río Viejo.	2.93	1967-70	1970	b [c]5.8	
		Río Grande de Añasco basin					
50143150	Río Bucarabones nr Las Marías, P.R.	Lat 18°13'27", long 66°56'41", at bridge, 300 ft upstream fr Río Guaba, and 3.8 miles southeast of Las Marías.	9.12	1967-70	09-23-70	10.33	+
		Río Culebrinas basin					
50147000	Río Culebrinas at San Sebastián, P.R.	Lat 18°20'08", long 66°59'46", at bridge on Hwy 109, 0.4 mile southwest of San Sebastián, and 0.9 mile upstream fr Río Guatemala.	16.6	1960, 1966-70	09-02-70	18.88 [c]3.5	+
50147300	Río Sonador at Perchas, P.R.	Lat 18°18'24", long 66°59'22", at bridge on Hwy 119, 0.6 mile southwest of Perchas, 2.2 miles south of San Sebastián, and 2.4 miles upstream fr Quebrada Quintana.	3.80	1966-70	09-23-70	8.74 [c]2.2	+
50148300	Río Cañas tributary nr Aguada, P.R.	Lat 18°20'35", long 67°09'33", at culvert on Hwy 2, 800 ft upstream fr Río Cañas, and 3.3 miles southeast of Aguada.	0.31	1967-70	1970	‡	

[+]Discharge undetermined.
[‡]No record.
[a]Approximately.
[b]Stage did not reach base of gage.
[c]Gage height of point of no flow.
[e]Estimate.

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Sana Muerto near Orocovis, Río 25
San Sebastián, Río Grande de Añasco near 66
Selected references 8

Tallaboa at Peñuelas, Río 64
Tanamá at Charco Hondo, Río 22
Tanamá near Utuado, Río 21
Terms, definition of 2
Toa Alta, Río Lajas at 35
Río de la Plata at 36
Toa Vaca near Villalba, Río 57

Unibón near Morovis, Río 32
Utuado, Río Pellejas near 18
Río Tanamá near 21

Villalba, Canal de Aceitunas near 56
Río Toa Vaca near 57
Viví near Central Pellejas, Río 19

Yabucoa, Río Guayanés near 50
Río Limones near 51

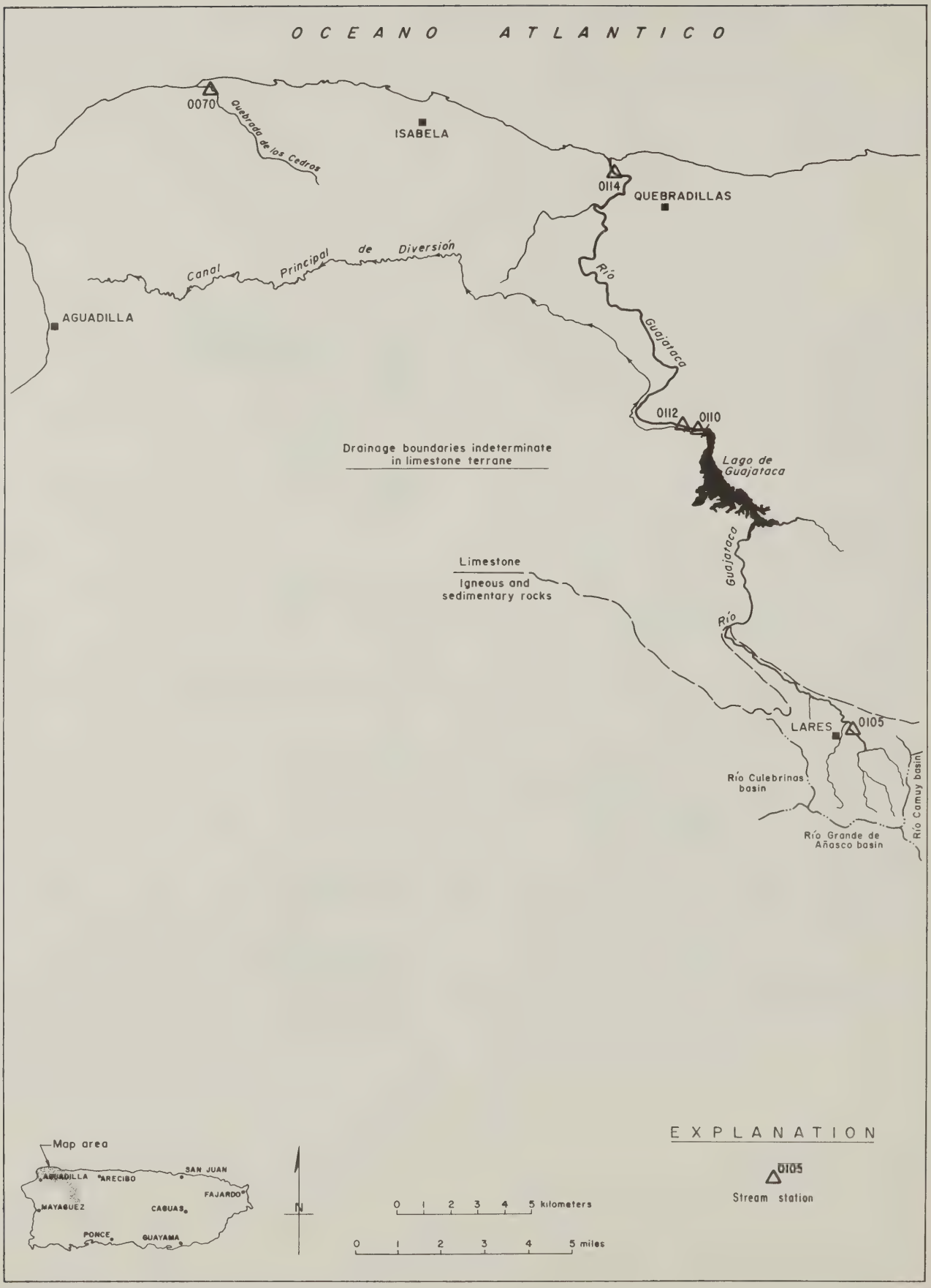

Figure 1.--Río Guajataca area

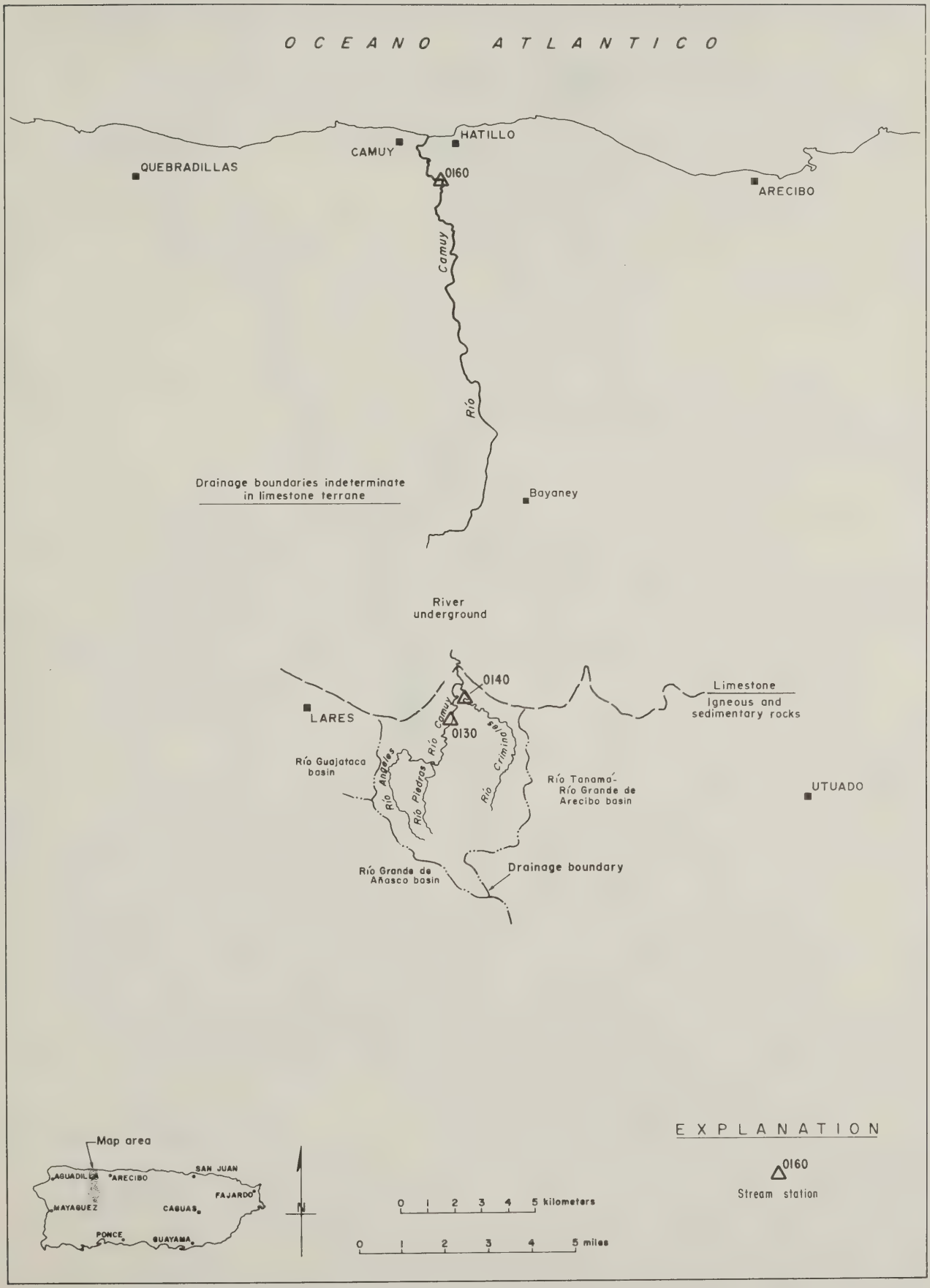

Figure 2.--Río Camuy area

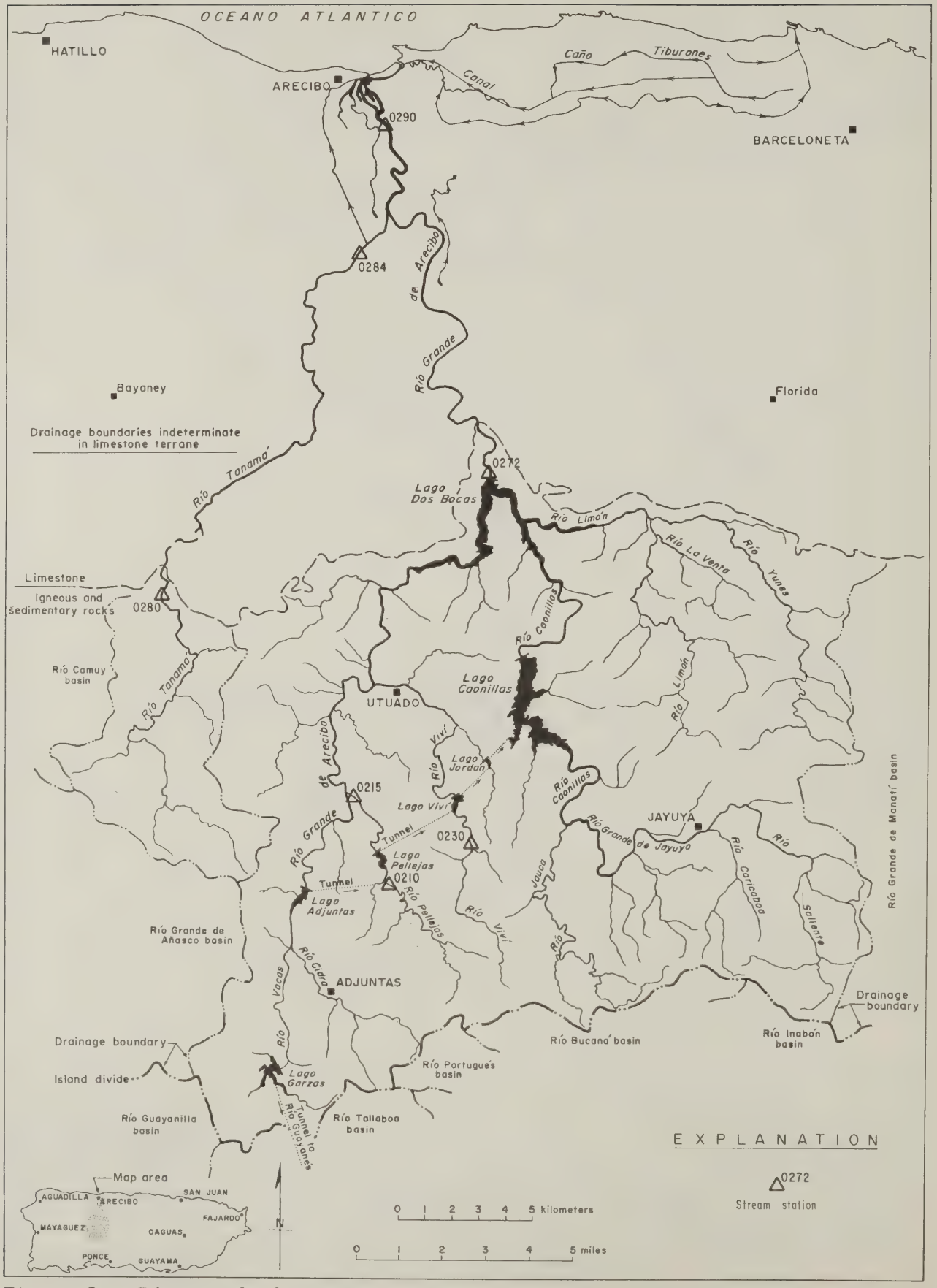

Figure 3.--Río Grande de Arecibo area

Figure 4.--Río Grande de Manatí area

Figure 5.--Río Cibuco area

Figure 6.--Río de la Plata area

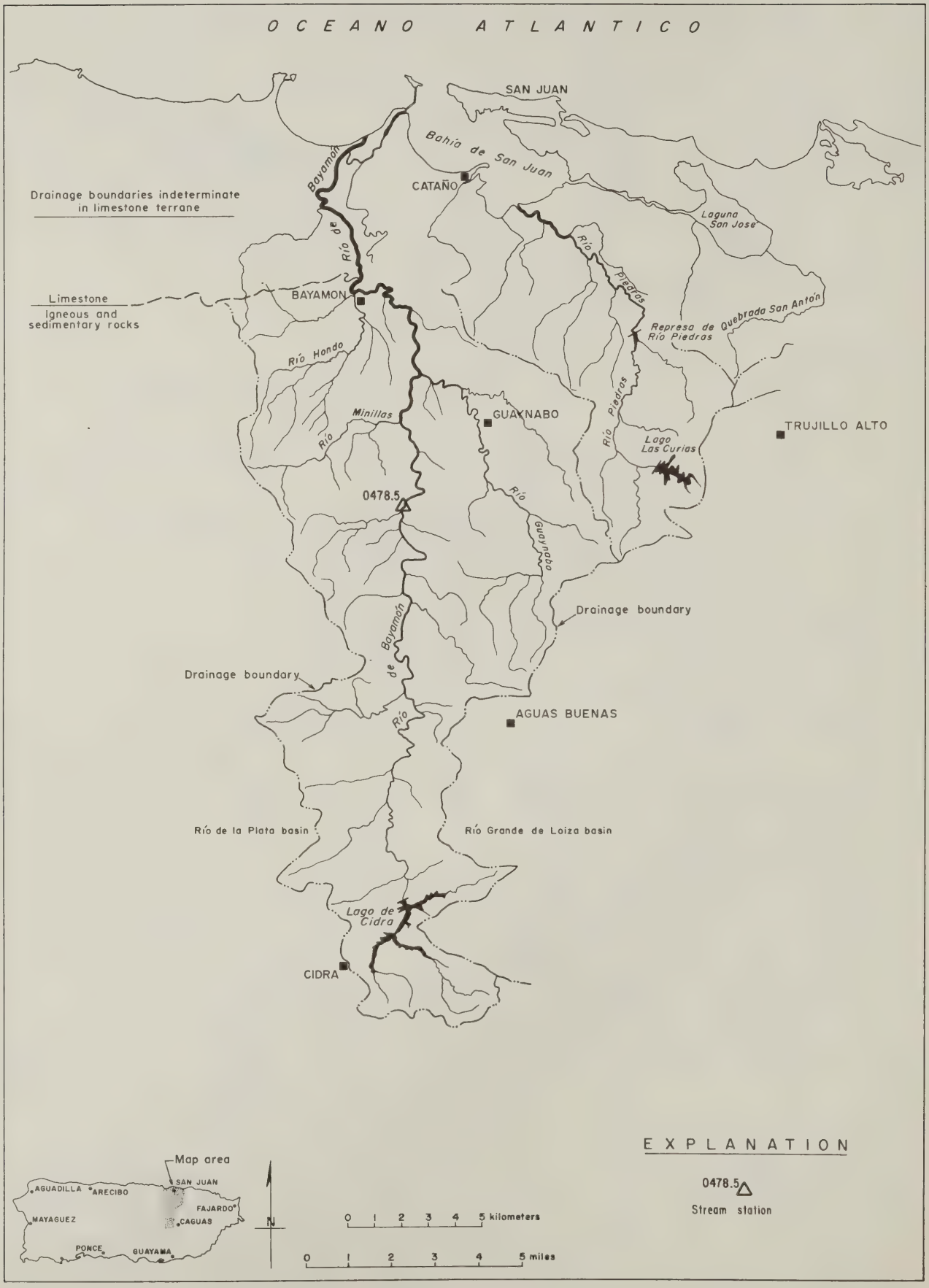

Figure 7.--Río de Bayamón and Río Piedras area

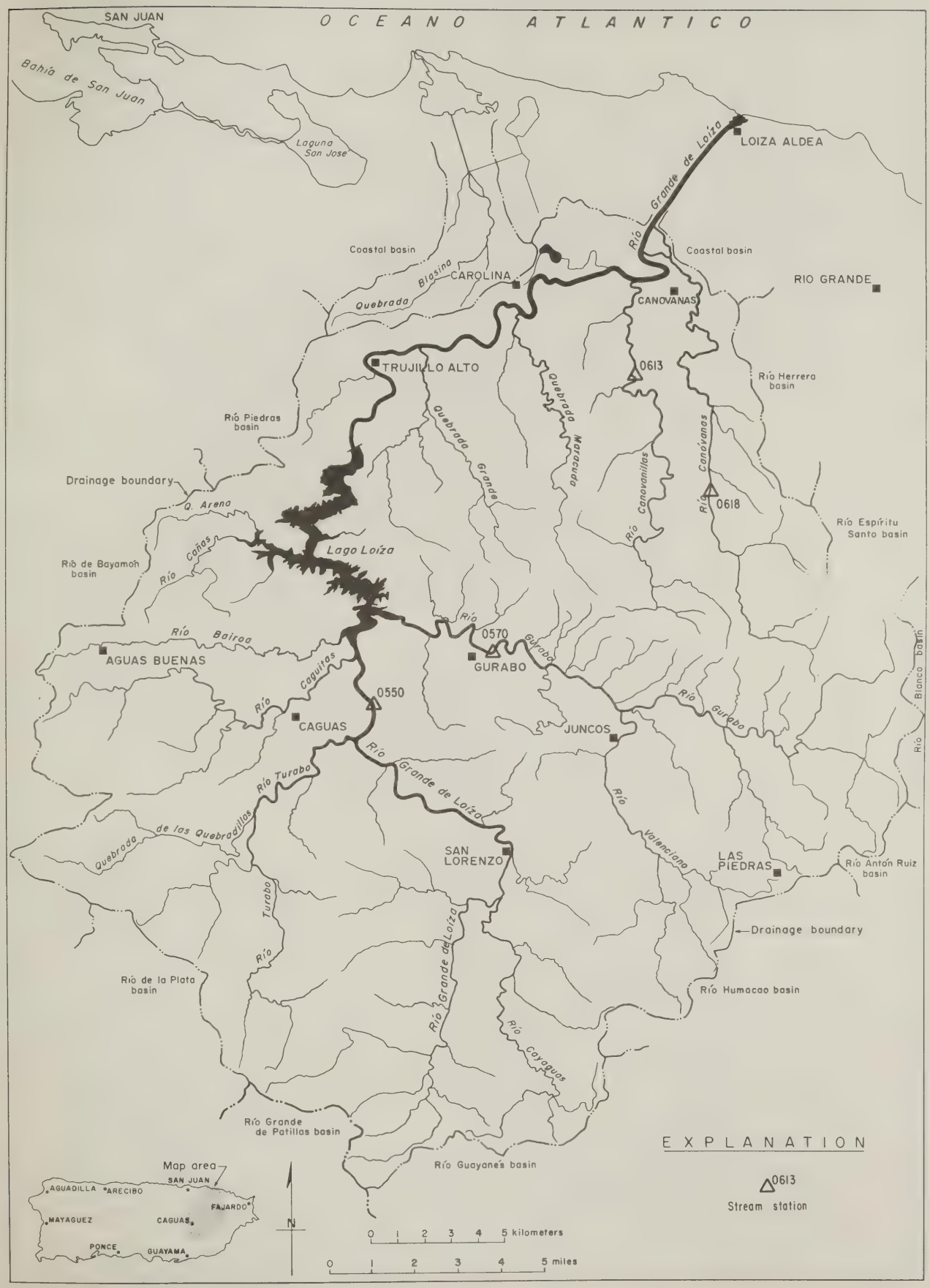

Figure 8.--Río Grande de Loíza area

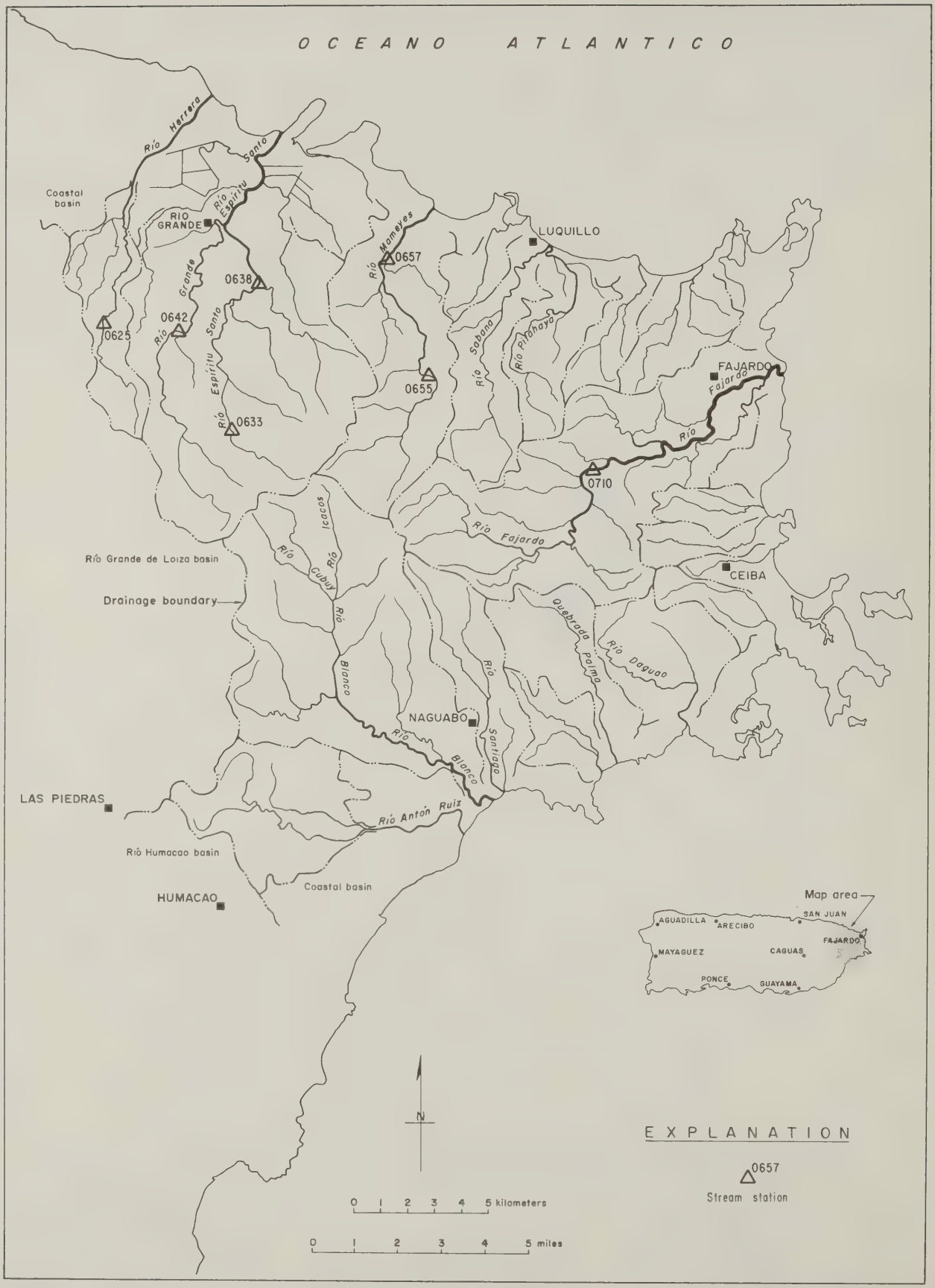

Figure 9.--Northeastern river basins — Río Herrera to Río Fajardo area

Figure 10.--Southeastern river basins — Río Humacao to Río Seco area

Figure 11.--South coast river basins — Río Salinas to Río Jacaguas area

Figure 12.--South coast river basins — Río Inabón to Río Loco area

Figure 13.--Río Grande de Añasco area

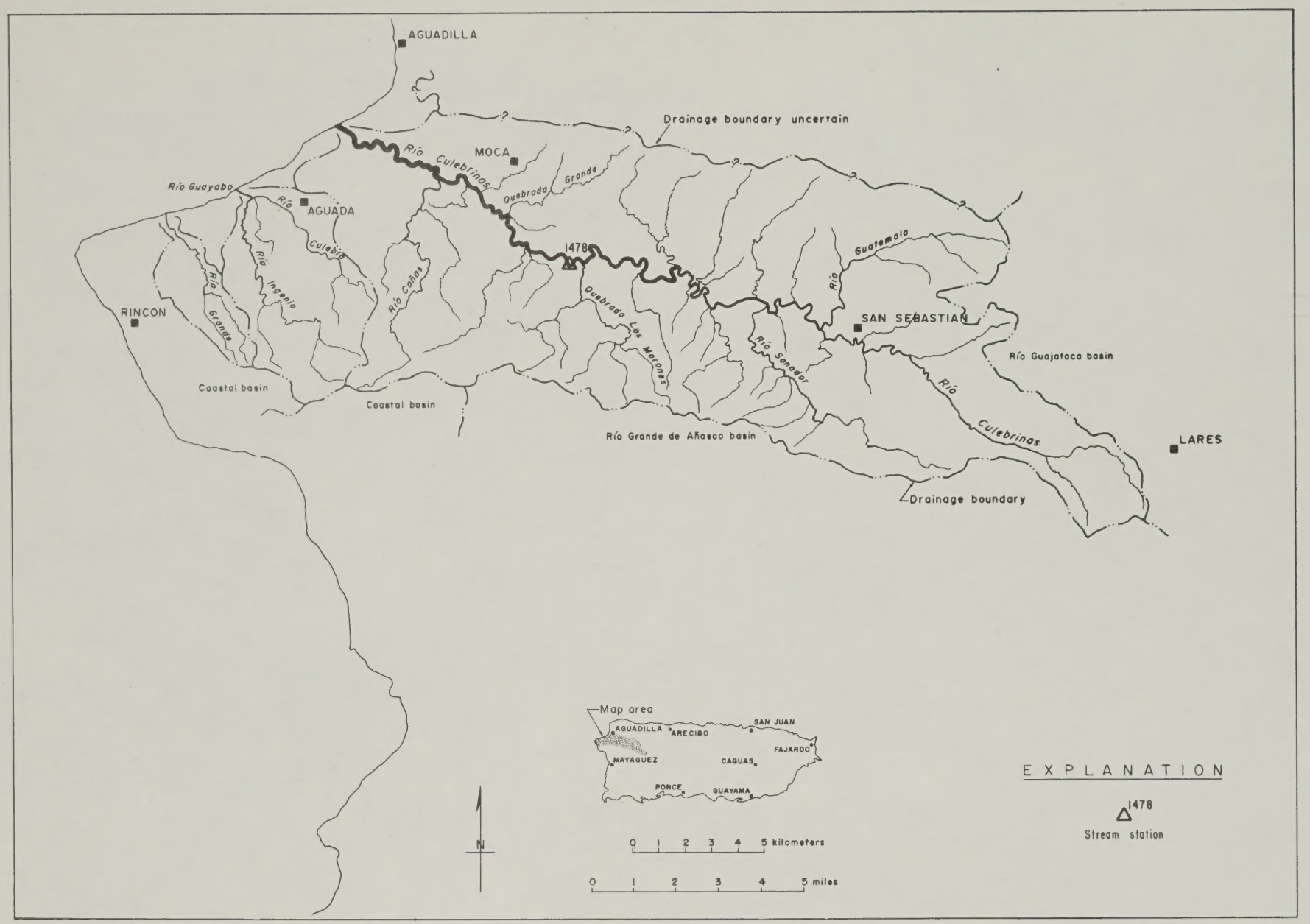

Figure 14.--Río Culebrinas area

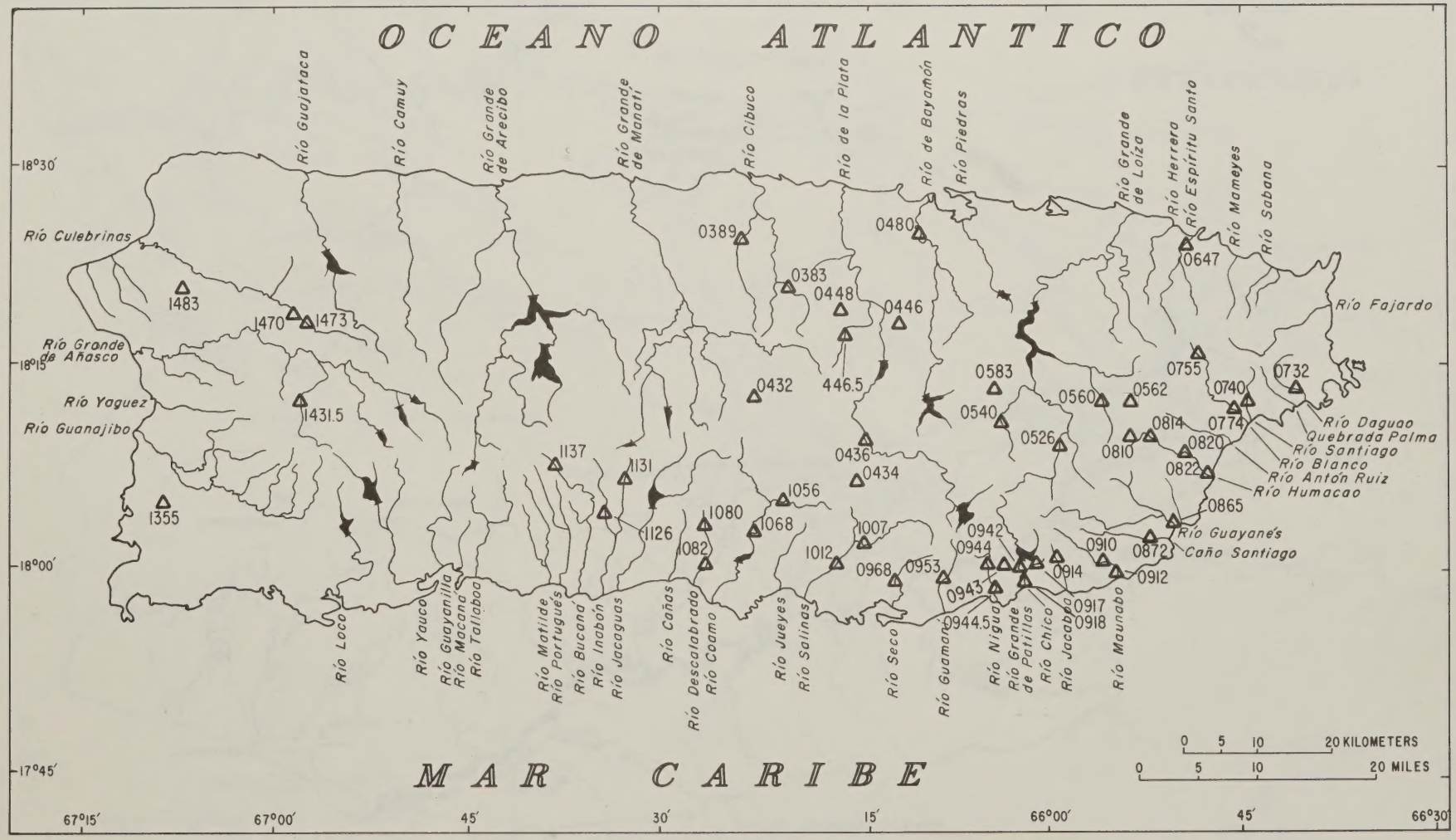

Figure 15.--Location of crest-stage partial-record stations

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